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AND OHIO SCHOOL JOURNAL.

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CONTENTS.

Long Ago.

There was a tree, an aged tree
That once I loved to climb,
And throned upon its branches three,
To rock them all the time;
To laugh and shout devoid of fears,
And swing me to and fro—
But ah! 'twas in my childish years,
That passed so long ago!

I've led a merry troop of boys,
Through tangled woods and lanes—
Too boisterous in our reckless noise
To heed the bramble pains.
Who never cared for garments torn,
An hour the rent would sew;
And we'd no time to stay and mourn
In childhood long ago!

I often think the early days
Were fairy days to me;
That childhood feel enchanted rays
Which manhood cannot see;
For cares and years together come,
In one entangled flow,
And angel voices all are dumb,
That soothed us long ago.

So long ago, the distant past,
Is like a pleasant dream,
But on the future still is cast
Its warm and sunny gleam.
A gleam of sunshine ever bright,
To cheer the path below
And wake anew the truthful light
That led us long ago!

From Chambers' Papers for the People.

The Microscope and its Marvels.

In 1839, Professor Ehrenberg communicated to the Natural History Society of Berlin the remarkable fact of his having discovered a bed of earth which, the microscope revealed, was composed almost wholly of living infusoria. This formation is situated in Berlin itself, and extends to twenty, and in some localities, it is said, even to sixty feet in depth, in the form of a funnel. It is situated at a depth of about fifteen feet. It is composed in about two-thirds of its mass of minute siliceous infusoria, of which the most astonishing fact concerning it is, that a very considerable portion is still living and breeding. The organisms cannot come in contact with the air for the purpose of oxygenation in any other way than by the water which percolates through the mass; yet life is sustained, and apparently actively carried on, in this enormous population of microscopic beings. Twenty feet below the pavement of city lies the city of the infusoria; and the bustle of human life thick and crowded above bears no comparison to the intensity of that below, where in a few cubic feet are contained billions more than the population of the city of men. In some quarters of Berlin the solidity of buildings is actually endangered by this bed of living beings.

In Virginia, there are extensive beds of siliceous marl, which consist in the main of the shields of infusoria. When a few grains of this earth are examined with a good microscope, forms of exquisite beauty and variety disclose themselves. In fact, the slightest stain left by the evaporation of a drop of slightly muddy water teems with these beautiful forms of minute existence. The towns of Richmond and Petersburg, in Virginia, are built upon the bodies of infusoria; the strata being several yards in thickness.

Ehrenburg's discoveries in the same direction—namely, in the influence of microscopic life in the formation of vast deposits—lead to still more important conclusions. In 1839, he instituted special researches upon the form of the harbor of Wismar, in the Baltic. The result of his investigations shows that from one-twentieth to one-fourth of the mass of deposited mud consisted of living infusoria in part, and partly of the empty shells of dead ones! In this harbor it appears that every week there is deposited upwards of 200,000 lbs. of mud. During the last hundred years there have been deposited by the running waters at Wismar 3,240,000 hundred weight of this mud. About one-tenth of this deposit consists, on the average, of infusorial animalcules! At Pillau, M. Hagan found that often half the entire volume of mud consists of infusoria. He calculates that at this place not less than from 7200 to 14,000 cubic meters of pure microscopic organisms are annually separated from the waters, and deposited in the form of mud. In the course of a century this would form an accumulated deposit of from 720,000 to 1,140,000 cubic metres of infusory rock, or Tripoli stone. Ehrenberg pushed his inquiries with his all-revealing microscope upon the mud of the Nile, the fertilizing properties of which have for ages attracted the notice of mankind. In all the specimens he has examined, he has found that infusory animalcules—beings of microscopic size—exist in such vast abundance, that there is not a particle of the soil left by the retiring waters, of the size of half a pin's head which does not contain one, and frequently many, of these animals.

It may be useful to suggest a few thoughts as to its multitudinous presence in the waters of the ocean. And here, not less than in other instances, the microscope enables us to perceive the truth and force of the expressions of the poet—

> See through this air, this ocean, and this earth,
> All matter quick, and bursting into birth.

Scoresby throws out an idea as to the numbers of the minute forms of life in the Arctic Ocean, which has always appeared to us to furnish the most astounding view of this inconceivable multitude. In these seas the water generally—like all water free from earthy impurities—is of a deep ultramarine hue. But parts of it, often covering an area of twenty or thirty square miles, are rendered green, and even turbid, from the quantity of animalcules contained in them. It was found that these creatures extended down to the depth of 1500 feet. Now Scoresby estimates that it would require 80,000 persons working unceasingly from the creation of man to the present day, to count the number of minute beings contained only in the space of two miles of that

turbid water! What, then, must be the sum which shall represent the aggregate of organic life in the waters of the Polar Sea, where one-fourth part of the Greenland Sea, for ten degrees latitude, consists of water thus surcharged with animalcules! These organisms differ from those we have been just describing, and belong to the tribe of medusæ. On the coast of Chili, says Mr. Darwin, "a few leagues north of Concepcion, the *Beagle* passed through great bands of muddy water, exactly like that of a swollen river; and again, a degree north of Valparaiso, when fifty miles from land, the same appearance was still more extensive. Some of the water placed in a glass was of a pale reddish tint; and, examined under a microscope, was seen to swarm with minute animalcules darting about and often exploding. They were exceedingly minute, and quite invisible to the naked eye, only covering a place equal to the square of the thousandth of an inch. Their numbers were infinite, for the smallest drop of water which I could remove contained very many. In one day we passed through two spaces of water thus stained, one of which alone must have extended over several square miles. What incalculable numbers of these microscopic animals! The color of the water, as seen at some distance, was like that of a river which has flowed through a red clay district; but under the shade of the vessel's side it was as dark as chocolate. The line where the red and blue water joined was distinctly defined.

We are too apt to regard the atmosphere as consisting only of air, forgetful of the innumerable organic particles—some living, or ready to live, and some dead—which float in the folds of its all-enveloping mantle. Humboldt's remarks regarding microscopic life in the air deserve extraction;—Wheel-animalcules, and a host of microscopic insects, are lifted by the winds from the evaporating waters below. Motionless, and to all appearance dead, they float upon the breeze, until the dew bears them back to the nourishing earth, and, bursting the tissue which encloses their transparent rotating bodies, instils new life and motion into all their organs. The yellow meteoric sand or mist (*dust nebulæ*) often observed to fall in the Atlantic, and not unfrequently borne in an easterly direction as far as Northern Africa, Italy, and Central Europe, consist, according to Ehrenberg's brilliant discovery, of agglomerations of siliceous-shelled microscopic organisms. Many of these float, perhaps for years, in the highest strata of the atmosphere, until they are carried down by the Etesian winds, or by descending currents of air, in the full capacity of life, and actually engaged in organic increase by spontaneous self-division. Together with these developed creatures, the atmosphere contains countless germs of future formations: eggs of insects and seeds of plants, which, by means of hairy or feathery crowns, are borne forward on their long autumnal journey."

The phenomenon of colored snow has long been familiarly known to those acquainted with popular science; and perhaps it may surprise some, who have been accustomed to look upon the cause of its color as of vegetable nature, to find it here noticed under the head of animal life in the air. It will be found, however, that both views—the vegetable and animal—of the coloring matter of red and green snow—are right when combined. Sir John Ross collected red snow upon a range of Arctic hills rising about 800 feet above the level of the sea, and Sir W. E. Parry found the same phenomenon when investigating these regions in 1827. He had previously observed that the impressions of the loaded sledges were of that color, but now he noticed that the footsteps of the party produced the same effect. Wherever heavy pressure was made upon the snow, the blood-like stain appeared, and every impression of their feet was tinged with crimson. Sometimes the color was paler, approaching a crimson hue. In March, 1808, rose colored snow fell in the Tyrol and Carinthia; and over Carnia, Cadore, Belluno, and Feltri, to the depth of nearly six feet. Green snow has also occasionally been seen. It was observed by Martins, in Spitzbergen, under the following circumstances:—The surface of the snow was natural, but the impressions of their footsteps displayed a colored appearance, and a little depth below this the snow seemed as if it had been watered with a green decoction. When this snow was melted, the water was slightly tinged. The minute organization which all allow to be the cause of this phenomenon, must be present in such cases in inconceivable numbers. Upwards of two millions and a half of these bodies are required to cover a surface not exceeding a square inch! The coloring matter has been by some considered to be a microscopic member of the vegetable family, the *Algæ*, and has been called accordingly *Protococcus nivalis*. On evaporation of the snow upon a piece of white paper, the coloring matter was left in minute granules; and, on these being examined by a microscope, it was considered that distinct evidence of its vegetable nature was afforded.

At the meeting of the Microscopical Society, on April 26, 1848, a most curious paper was read, by Mr. J. Quekett, upon the application of the microscope to a very singular sort of antiquarian research. Early in the month of April, 1847, Mr. Quekett was asked by Sir Benjamin Brodie whether it were possible to determine if skin, which had for many years been exposed to the air, were human or not? He replied in the affirmative, if any hairs were present. It was then mentioned that Mr. Albert Way was very desirous of ascertaining whether certain specimens of skin, stated to have been taken from persons who had committed sacrilege, and which for centuries had been attached to the doors of churches, were unequivocally human. Subsequently, a communication from Mr. Way, containing a specimen of skin, together with an account of the tradition which narrated the circumstances of its having been taken, was made to Mr. Quekett. The tradition, which resembles many others of a similar kind, exists in Worcester, that a man, having been caught in the act of committing robbery in the cathedral, was flayed, and his skin nailed upon the doors, as a terror to the sacrilegious. The doors have been recently replaced by new ones, but they are still to be seen, and a portion of the skin, which was found under the iron hinges and clamps of the door, was submitted to microscopical examination. With a power of a hundred diameters, it was found that the skin was really human, as it had two hairs on its surface; and very probably the unfortunate wretch had light hair! A piece of skin, traditionally given to a Danish pirate, existed for nine hundred years on a door of a church in Essex. In 1848, the microscope revealed the fact, that it was in all probability taken from the back of the Dane, and that he, too, was probably a light haired individual. A more singular application of this instrument than that in question can scarcely be imagined. Besides showing its great scientific value in bringing to light otherwise hidden truths, these specimens establish the wonderful power of skin and hair to withstand for centuries atmospheric influences, and serve to point out that, next to the bones, they are the most durable parts of the human frame.

It appears that M. Orfila, the renowned toxicologist, was one of the first to apply the microscope to the elucidation of questions connected with medical jurisprudence. A very curious evidence of its importance in those investigations in which the science of medicine has to be united with the study of the law occured in France, in 1837. A murder had been committed under peculiar circumstances, and the corpse was found covered with blood, and wounded in several places. The murderer was wholly unknown. Suspicion at length fell upon an individual, whose house was immediately searched for evidence of the deed. But nothing was found calculated to implicate this person beyond a hatchet, on which were some stains and a few hairs. It was thought that a clue was now obtained to the discovery of the murderer, and the hatchet was submitted to microscopical investigation. M. Ollivier undertook the task, and in a short time confidently declared, that so far as this evidence against the individual went, it was futile. The hairs proved, on examination, to belong to an animal, and not to man. The events of the trial fully confirmed this, and the evidence fell to the ground. At another period, it may be easily imagined how poor would have been the suspected person's chance of escape, against whom circumstantial evidence of such a nature could be brought! To the microscope, it is scarcely too much to say, this person was indebted not only for the declaration of his innocence, but for the preservation of his life. From a difference which physiologists well know to exist between the blood and globules of animals and those of man, it would be possible by the assistance of the microscope to ascertain whether the blood on the dagger were human or animal, and thus to establish the fact whether or not it had been innocently or guiltily employed.

Some years ago it was publicly announced in Paris, that the milk dealers were adopting a wholesale system of adulterating milk, and one on an entirely new principle. It was stated that these ingenious artists—for so they must be called—first removed the cream of the milk, and then, in order to restore the richness of the fluid, added a certain quantity of the brain of the calf or sheep. This was afterward denied by the paper that at first announced it, but failed to quiet a great portion of the population of Paris, who were thrown into great excitement by it, as the use of milk is almost universal among all classes. It became, therefore, of extreme importance to discover whether this adulteration actually took place. M. de Chaubry, in a memoir read before the Royal Academy of Medicine, asserted that by means of the microscope this adulteration, when present, could be certainly detected. When the brainy matter of the sheep or calf is added either directly to the milk, or in emulsion with water in the proportion of 5 per cent., the physical properties of the milk—its odor, savor, color, and density are not so notably altered as to allow the adulteration to be at once perceived. But on microscopic examination the foreign matter was immediately detected. On employing a power of from 300 to 500 diameters, fragments of tubes known to form part of the cerebral substance were seen by the side of the ordinary milk globules. MM. Soubeiran and Henry confirmed these results.

Anecdotes of Roman Nunneries.

A recent lady traveler in Italy, has published some curious and interesting anecdotes relative to the nunneries of Rome. Speaking of the convent of St. Sylvestra, our informant says: "The history of one of the former nuns of this convent, as related to me by one of the sisters, is quite a romance, and in its most common-place style. Her name was Sasso Ferrato. She was left an orphan and an heiress in infancy, and placed by her uncle, her sole guardian, here, with the intention that her fortune might descend to him and to his family. It happened, however, that at one of the grand processions of the Virgin, which the nuns were assembled to behold, the young Sasso Ferrato saw, and was seen by the captain of the guards stationed at the convent—a younger son of the Giustiniani family, and a brother of one of her youthful companions in the convent. His visits to his sister became very frequent, and Sasso Ferrato generally contrived to accompany her friend on these occasions. They became desperately in love; but the cruel uncle refused his consent, and by arts which intimidated the young and inexperienced mind of Sasso Ferrato, by a powerful interest which rendered the complaints of her lover vain, and by his authority as the reperesentative of her parents, he succeeded in obliging her to take the veil. She only lived two years afterward. Her lover became a maniac, and after being confined for some time, continued during the remaining years of his life to roam about the neighborhood of the city—his hair and beard growing wild, his dress neglected, and his manners gloomy and ferocious, though harmless in his actions."

"A still more horrible catastrophe ensued at a convent in the north of Italy. An unfortunate girl, whose father was resolved to compel her to take the veil, contrary to her inclination, persisted for a long time in her refusal, but was treated with such dreadful brutality at home that at length she consented; but no sooner had she pronounced her vows than she requested a private interview with her father, at the gate of the convent, and, when left alone with him, killed herself before his eyes, cursing him with her latest breath.

"I am informed that young nuns often fall in love with young friars, but that the attachment is perfectly Platonic. Indeed, so strict are *now* the rules of female monastic life, that I believe it must necessarily be so. But love, it is well known, will break through bolts, and bars, and grates, and convent walls; and love once inspired a nun with the project of getting out of her convent through a common sewer—which, however unsavory a path, she frequently practiced after night had covered the world with her sable mantle. Her nun's dress was deposited in her chamber, and the exterior dirty garment with which she passed through the sewer was exchanged for one her lover wrapped her in at its mouth. She used to walk with him for hours, but always returned to her convent before dawn.

"One evening, however, on returning from her romantic ramble by moonlight, what was her horror to find the sewer—her well-known passage—completely choked up with water, and all entrance impracticable. Discovery would bring certain destruction on herself and her lover. Their lives would be the forfeit, or a solitary dungeon their mildest doom. Concealment was impracticable; for who would harbor them? Flight was impossible; for without their passports the gates of the city would be closed against them; and could they scale the walls, no other would be open to them. In this situation her courage and presence of mind saved them both. She went, dressed in her lover's clothes, to the house of Cardinal Vicaro, who was an old friend of her father; disturbed the family; had the cardinal roused out of bed, on the plea of the most urgent and important business; obtained a private audience; threw herself at his feet, and confessed all.

"So earnestly did she implore him to save her and her family from the public disgrace of an exposure, that, melted by her tears, he followed the plan she suggested; ordered his carriage, took her and one confidential chaplain on whose fidelity he could rely, drove to the convent, rang up the porteress, and pretending he had received information of a man having entered, and being concealed in it, demanded instant admittance to search it, which, in virtue of his office, could not be refused at any hour. He ordered the terrified sisters to remain in the rooms, and having dropped the disguised nun in hers, proceeded in his mock examination till she had disrobed herself, and his attendants had conveyed away the bundle of her clothes; then, professing himself perfectly satisfied that the information he had received was false, he left the convent—taking care, however, next day, to have the sewer so closed that it could never serve for any thing again, but a passage for dirty water.

"The most severe of the female monastic orders is that of Santa Theresa, in which its unfortunate votaries are doomed to unceasing midnight vigils and daily fasts; to penance, austerity, and mortification, in every possible form; while all intercourse with their friends, all indulgence in the sweet affections of nature, are as sedulously interdicted as if these were crimes of the blackest dye. It is the merit of their lives that death is continually before their eyes—continually present to their thoughts.

"There is in Rome a convent called, and justly called, the *Spel to Vivo*, in which are buried contumacious or fanatic nuns from all convents, and wives and daughters whose husbands and fathers have the means to prove they deserve, or the interest to procure the order for such a dreadful punishment. Instances have occurred where mere resistance to the will of a parent, or causeless jealousy conceived by a husband, has been followed by this terrible vengeance. What may pass within its walls can never be known; none but its victims may enter and none of them may quit it. They see no human being excepting once a year, when, in the presence of the abbess, they may have an interview with their father or mother; but they must not tell the secrets of their prison house. They hear no tidings of the world that surrounds them, nor even know when the friends dearest to them are removed by death."

Instinct of Animals.

Mr. Mudie, the writer of the article "Fox," in Partington's Cyclopedia, relates, from his own personal knowledge, the following particulars: One morning, early, a man in the north was going to his work, through furze bushes, on a common, and came upon a fox, stretched out at full length, under the side of one of the bushes. The fox was drawn by the tail, and swung right and left, and then laid on the ground, but not a symptom of motion or life did he show. The man, never doubting that Reynard had gone the way of all foxes, and nothing loth to add a fox-skin cap to the list of his personal garniture, and the brush to the tail of a peacock feather, and other ornamental trophies over the little looking glass, that stood inclined from the wall of his cottage, took the animal by the tail and swung it over the one shoulder, at the same time placing his mattock on the other to keep up the balance; and having done so, onward he trudged to mend the high road. The animal had counterfeited death to admiration, and he did not mind being carried in the manner of a dead fox; but he had no inclination to undergo that species of dissection which the point of the mattock was ever and anon giving to his ribs; so, at last he gave the decisive snap, which is the characteristic bite of foxes. The man felt that something was the matter, but knew not very well what; so, throwing the fox and mattock from him, he turned round to face his foe, whoever he might be, and, in turning, he espied his dead fox, at the distance of full fifty yards, making for the brake with all imaginable speed.

We shall mention one other anecdote, which came within the personal knowledge of the writer of this article, because it throws some light on the mode of action of the fox. The parsonage of Kilmorac, in Inveroeshire, is situated in a highly romantic spot, and the clergyman of Kilmorac was a man of great taste and very hospitable. A well-stocked poultry yard is an essential requisite in such cases; but the foxes were so numerous, and their covers so near, that a poul try yard was out of the question. A poultry house was thus requisite, and the reverend doctor prided himself not a little in having constructed one which was completely fox-proof, and for a good many years it had been impregnable. A friend of ours had spent a night in this romantic

and hospitable abode, and while fresh salmon from the Baulay formed one article for the breakfast table, new laid eggs from the stronghold of the hens, were of course to form another. The purveyor of these cases took the key and marched off, basket in hand, to bring the supply; but when she opened the door, a scene of the most direful havoc presented itself. Every perch and every nest hole was bedabbled with blood; dead hens lay in dozens on the floor, and in the middle was a full-sized fox, stretched out at full length, and apparently a sharer in the common mortality. The maid never doubted the death of the fox, but attributed it to a different cause, namely, that he had so gorged himself on the poultry that he had burst. Here were three causes to rouse the mingled wrath and contempt of the servant; and after some exclamations, she took him by the tail and swung him with all her might into the receptacle in which were accumulated the requisites for garden compost. The fox fell safely, and rose again speedily, and scoured along until he gained the cover of the woods, leaving the servant in utter consternation.—*Church's Illustrations of Instinct.*

The Beauty of England.

The beautiful and majestic tournure, the symmetrical and elastic forms, of the ladies of English aristocracy, have been for three or four centuries at least, the envy and admiration of the world. What may be termed the poetry of configuration seems to belong as a natural inheritance of those proud, haughty and cold-hearted beauties. Taught by that most contemptible of all affections, the desire to be thought better pleased any where else than at home, our writers too frequently fall into the ridiculous blunder of the English Cockney scribblers, who go into raptures over France, Spain, Italy, without having voyaged beyond Wapping, and seek, particularly in the matter of female loveliness, to decry their own fair and splendid countrywomen, on all possible and impossible occasions. To the native of the continent, who happens to find himself either in England or the United States, this is ridiculous enough; and our beautiful sisters and daughters may console themselves for the idiotic blindness of their scribbling countrymen, with the deep and absorbing admiration with which their magnificent and enticing style of beauty inspires every foreigner of fashion, refinement, or good sense.

We said, in speaking of the ladies of the English aristocracy, that they were cold-hearted. We used the term in its ordinary acceptation—we meant simply that they invested their beauties with that exquisite frost work of modesty and reserve, which it is so delicious for the signs of honorable love to breath upon and dissipate. Passion in the abstract, is a thing unknown to the well-bred English and American maiden—it is a h under-tone which never is awakened in their guileless bosoms, but by the elect icity of holy and mutual love. They feel, with their delicate instinct, that female beauty, in which is not shrined the unextinguishable lamp of modesty, shedding its rosy luster upon all the transparent symmetry of that sacred temple, is but a statute of ice, which melts beneath the fierce sun of passion, but to mingle with the gross earth and be trampled under the foot of the meanest and the basest. An invisible impulse—a sweet yet irresistible power, of whose existence they themselves are unconscious but by its effects—keeps their hearts and minds as themselves, not only pure, but beyond the thought or aspiration for aught that could lay the shadow of taint upon them. They learn of their own thoughts to keep their beauty as a sacred and inviolable repository of Heaven's choicest and most delicious fragrance; and it is only when the subtle flame of love, born like themselves in Heaven, and sent seeking its congenial nourishment through all the world, unseals the alabaster portals of their gentle bosoms that the fountain of affection—clear, deep, and tranquil as the eternity to which it is running—bursts forth and flows, for ever. The weary soul to whom is permitted to refresh its drooping pinions in that wave is blessed indeed!

Old Rothschild---The Pains of Avarice.

It was not an unvaried sunshine with this gentleman. There were periods when his gigantic capital seemed likely to be scattered to the four quarters of the globe. He had also other sources of apprehension. On one occasion he was waited on by a stranger, who informed him that a plot had been formed to take his life: that the loans which he had made Austria, and his connection with governments adverse to the liberties of Europe, had marked him for assassination, and that the mode by which he was to lose his life was arranged. But, though Rothschild smiled outwardly at this and similar threats, they said, who knew him best, that his mind was often troubled by these remembrances, and that they haunted him at moments when he would willingly have forgotten them. Occasionally his fears took a ludicrous form. Two tall, moustachioed men were once shown into his counting-house. Mr. Rothschild bowed; the visitors bowed; and their hands wandered first into one pocket and then into another. To the anxious eye of the millionaire, they assumed the form of persons searching for deadly weapons. No time seemed allowed for thought; without a moment's warning a ledger was hurled at the intruders; and in a paroxysm of fear, he called for assistance to drive out two customers, who were feeling in their pockets for letters of introduction. There is no doubt but that he dreaded assassination greatly. "You must be a happy man, Mr. Rothschild," said a gentleman, who was sharing the hospitality of his splendid home, as he glanced at the superb apartments of the mansion. "Happy—me happy!" was the reply. "What! happy, when, just as you are going to dine, you have a letter in your hand, saying, "If you do not send me £500 I will blow your brains out!" Happy! me happy!" And the fact that he had frequently slept with loaded pistols by his side, is an indirect evidence of a constant excitement on the subject.—*Character of the Stock Exchange.*

STONE PUMPS LINED WITH GLASS.—We have recently seen described what we consider a very valuable improvement in pumps, manufactured by E. H. & C. J. Merrill, Middlebury, Summit county, Ohio, which for durability and freedom from any injurious effect on the water must be very desirable. The pump is manufactured from the clay, used in manufacturing stone ware, and the caliber coated with glass. No water is suffered to become stagnant in the well, although closely covered, a small stream of water being allowed to fall upon the surface of the water in the well from an aperture just beneath the plank or stone that covers the well or cistern, and thus it is prevented from freezing. This aperture may be stopped at pleasure. The well is ventillated through the case, so that insects, leaves and dust can not get in.

The buckets and valves are construeted like those of the old fashioned wood pumps, and thereby rendered less liable to get out of repair, and more easily repaired than any other pump in use. There is no iron to rust and destroy the leather valve, but all works in and on stone, made perfectly true by machinery, and coated well with glass.

The exhausting chamber is situated immediately below the valve, and prevents the lower column from falling into a state of rest between each movement of the break, consequently works easier. The caliber is very smooth and perfect: and, consequently, they will work easier and last longer than other pumps.—*N. Y. Farmer and Mechanic.*

☞ A Norfolk (England) farmer, not accustomed to literary composition or letter writing, having lost a new hat at a county meeting, and to inquire into its possible mistaking, addressed the following *grammatical* note to its supposed possessor:

"Mr. A. presents his compliments to Mr. B., I have got a hat which is not his, if he has got a hat which is not yours, no doubt they are the missing one."

☞ A quibbling writer of the last century observes, with great quaintness, that when the CANNONS of princes began war, the authority of the *canons* of the church were destroyed. "It was," says he, "first *mitrum* that governed the world, and then nitrum—first Saint Peter, and then Salt Petre."

A Mother's Love.

Hast thou sounded the depths of yonder sea,
And counted the sands that under it be?
Hast thou measured the hight of heaven above?
Then mayst thou mete out a mother's love.

Hast thou talked with the blessed, of leading on
To the throne of God, some wandering son?
Hast thou witnessed the angel's bright employ?
Then mayst thou speak of a mother's joy.

Evening and morn, hast thou watched the bee
Go forth on her errands of industry?
The bee, for herself, hath gathered and toiled,
But the mother's cares are all for her child.

Hast thou gone with the traveler, Thought, afar,
From pole to pole, and from star to star?
Thou hast, but on ocean, earth, or sea,
The heart of a mother has gone with thee.

There is not a grand inspiring thought,
There is not a truth by wisdom taught,
There is not a feeling, pure and high,
That may not be read in a mother's eye.

There are teachings on earth, and sky, and air,
The heavens the glory of God declare,
But louder than voice beneath, above,
He is heard to speak through a mother's love.

From the Boston Commonwealth.

The Common School.

"We have no rank among the large States of this Union derived either from population or extent of territory; but the time can never come when a million of well-educated people shall fail to exert influence in every part of this ocean-bound republic. You can not except to secure this desireble result by any other agency than the Common School.—*Gov. Boutwell.*

If what our Democratic Governor says is true—and we hold more than this to be true—Massachusetts has a deep interest in any thing which will increase the power of the common school. It is a very easy thing, we think, to prove that a large fraction—say three-fourths—of the efficiency of the common school is wasted by our imperfect and awkward manner of visualizing our mother tongue. As we have now a Legislature pledged to State Reform, we invite the particular attention of its members to what we have to say. Many of them, we think, will not throw aside our article before they have weighed it, simply because it calls in question the perfection of some things that are old, or proposes innovations which are treated with contempt by *some* of the very learned and respectable.

We worship the art of printing, but that art is nothing of itself, and nothing in its effects to what it might be. The real lever of civilization lies below the printing press—it is the pen, the written language. The Virginia savage who saw with astonishment the effect of Captain Smith's pencil marks on the leaf of his pocket-book discerned the great difference between the European race and his own. The art of *writing* is the art of arts, the basis of society. From the evanescent sound of the voice to the sound made permanent and visible—daguerreotyped, so to speak is an almost infinite step. Be it only in hieroglyphics confined to priests, it is so. The Cadmian invention of the alphabet expands the blessing. It is a sort of half-way house to the effect which is possible. With this invention, as it is and has been for some thousands of years, the use of the written and printed language may be acquired with considerable study and labor. By great expense and exertion the knowledge of it may be diffused, as it is here in Massachusetts, to a large portion, perhaps the mass of community. Still a large portion stick in the gateway, and never come to enjoy the full benefit of the language as they might.

In reality, with the proper means, there is no more difficulty in having our whole population learn to write and read than there is in having them learn to talk. And we may safely say that the Legislature of this or any other American State, has it in its power to render it certain that every child will learn to read and to write, if it has learned to talk; in other words, to render it impossible that there shall be within its borders a person not educated to spell, read and write.

What, in this day of omnipresent books and newspapers, prevents any person who speaks the English language, from also reading and writing it, we will proceed to explain.

Any one who will carefully analyze our English spoken language will find that we use in its utterance just forty different positions of the organs of voice. In other words, we have just forty simple elements of sound which by their various combinations form all our words By reckoning in provincialisms, we may, perhaps, make out two or three more to nice ears, though not very distinctly. But there is *not one less.* To represent these forty elementary sounds, we have only twenty-six letters, leaving fourteen sounds unrepresented. But no body knows which we leave unrepresented, for we give some of the letters two, three, four or five powers; that is, we put each of these letters to represent so many different sounds, so that we have at least, to represent forty elementary sounds, some sixty or seventy different powers of letters, or reckoning in combinations of letters, we have hundreds of powers or representatives for forty simple sounds; and the question, which shall be used in a particular case is, in our actual orthography, a matter very essential—almost of life and death—and yet is perfectly arbitrary! To make the matter worse, the names of the letters only in rare instances correspond with the powers.

Thus it happens that the simple matter of spelling and reading English is made a puzzle which it takes years to solve. Any person, infant or adult, having learned the names of the English alphabet, has not probably achieved one-thousandth part of the labor of learning to read. Indeed, from this imperfection and utter chaos of the alphabet it comes to pass that a man never knows the right pronunciation of any one of the seventy or eighty thousand words in the language till he has learned it particularly by the ear, or from some other source than the letters with which it is spelled. This labor is all thrown away, and worse. The young learner, reasoning from what he has already learned of the nature and use of his letters, finds himself constantly contradicted by the arbitrary usage, till, when he has acquired the ability to spell correctly, he has also acquired the bad mental habit of submitting blindly to rules without reason.

A very simple improvement of the alphabet changes all this. With forty distinct letters, a letter for each sound, and but one sound for any letter, and having the names of these letters identical with their powers, the moment the alphabe is learned, reading and spelling are learned. A knowledge of the alphabet becomes a key which unlocks to the free use of English Literature, without a school or a teacher. *This improvement wonld relieve our schools from an enormous and almost endless drudgery, and give them an opportunity to impart real knowledge, whereas, now, they are chiefly occupied in building the mere ladders and staging to knowledge.*

We have been led to these remarks by a visit to a small primary school, under Warren street Chapel, where children are taught in books having the right number of letters, *and know how to read and spell the moment they have learned to distinguish these letters.* Children that have enjoyed *two months* instruction in that school, we are safe in saying, read with far more ease and propriety than those who have been taught *two years* in the common schools, by the usual method—and, mark this, they can do it in books printed *orthographically*, in the common defective alphabet!

A single fact proves the value of this invention, and relieves us of the necessity of saying another word on this point. *As soon as the children of this school have learned their letters, the teacher has been obliged to retain their books at school, because the parents have complained of their being too closely attached to them at home!*

To us, this experiment in education seems unspeakably interesting. View the phonetic alphabet as only a facilitation to the use of the unphonetic, and it is of immense importance, but let the laws, a few newspapers, and a small supply of books be printed in it, and it becomes almost a substitute for our present schools. It settles the question about people that can not read and write. It places the bulk of our population at the beginning of their education, about where they now are when they leave off. Here is a reform which has the sanction of many of our most distinguished men, and which was dear to the heart of the great Benjamin Franklin. It is true, that like all other reforms, it tends directly against that peculiar institution on which this Union is supposed by many to rest; but we still hope Mr. Boutwell and his Council will look into the matter, and not leave his praise of the Common School a barren generality.

A Touching Incident.

I went one night to see a comedy. The chief actor was a favorite and the theater, a small provincial one, was very crowded. The curtain drew up and amidst a burst of applause, the hero of the piece made his appearance. He had hardly uttered twenty words when it struck me that something strange was the matter with him. The play was a boisterous comedy of the old school, and required considerable spirit and vivacity in the actors to sustain it properly; but in his man there was none; he walked and talked like a person in a dream, his best points he passed over without appearing to perceive them; and altogether he appeared quite unfit for the part. His smile was ghastly, his laugh hollow and unnatural; and frequently he would stop suddenly in his speech and let his eye wander vacantly over the audience. Even when, in his character of a silly husband, he had to suffer himself to be kicked about the stage by the young rake of the comedy, and afterwards to behold that careless individual making love to his wife, and eating his supper while he was shut up in a closet from whence he could not emerge, his contortions of ludicrous wrath which had never before failed to call down plenty of applause, were now such dismal attempts to portray the passion, that hisses were audible in various parts of the theater. The audience were fairly out of temper; and several inquisitive individuals were particular in their inquiries as to the extent of potations he had indulged in that evening. A storm of sibilation and abuse now fell round the ears of the devoted actor; and not content with verbal insult, orange peel and apples flew upon the stage. He stopped, and turned to the shouting crowd. I never saw such misery in human countenance. His face was worn and haggard, and large tears rolled down over his painted cheeks. I saw his lips quiver with inward agony—I saw his bosom heave with convulsions of suppressed emotion and distress, that the most ruthless heart must have throbbed with pity. The audience was moved; and by degrees the clamor of invective subsided into a solemn silence, while he stood near the footlights, a picture of dejection. When all was calm, he spoke, and in a voice broken by sobs that seemed to rend his bosom, proceeded to offer his little explanation:

"Ladies and gentleman," said he, "though in my acting to-night, I am conscious of meriting your displeasure, in one thing you do me wrong, I am not intoxicated. Affection alone, and that of the most painful kind, has caused me to fulfil my allotted part so badly—my wife died a few hours ago, and I left her side to fulfil my unavoidable engagement here. If I have not pleased you, I implore you to forgive me. I loved her, grieved for her, and if misery and anguish can excuse a fault, I bear my apology —here!"

He placed his hand upon his heart, and stopped, and a burst of tears relieved his momentary paroxysm of grief. The audience were thoroughly affected, and an honest burst of sympathy made the walls tremble. Women wept loudly, and strong men silently; and during the remainder of the evening his performance was scarcely audible, through the storm of applause by which the crowd sought to soothe the poor fellow's wounded feelings. There was something very melancholy in the thought of that wretched man's coming from the bed of death to don gay attire, and utter studied witticisms for the amusement of a crowd. Not one of them dreamed of the anguish that lay festering under the painted cheek and stage smile. And in the great theater of life how many are there around us like that poor actor, smiling at the gay multitude, while at home lies some mystery of sorrow, whose shadow is ever present with them in busy places, and solitude revels upon their hearts like a ghost among the tombs!

Xenia High School.

J. Hurty, the energetic Principal of this school, writes us that his charge was never in more flourishing circumstances. The number enrolled in Room No. 1, during the last session, was 100; in No. 2, 73; in No. 3, 88; in No. 4, 40; in the Ladies' Department (highest) 56; in the Gentlemen's Department, (highest) 78. The average daily attendance in Room No. 1, was 45½; in No. 2, 41½; in No. 3, 41; in No. 4, 26½; in the Ladies' Department, 39 1-13; in the Gentlemen's Department, 48. The per cent. of attendance in the Ladies' Department, during the last quarter was, 97 8-10; in the Gentlemen's Department, 97 4-10. The whole number of pupils enrolled for the session, (ending February,) was 435; daily average attendance 241½; expenses for teachers salaries, $928,28; incidental expense $100; total, $1028,28.

"During the first part of the session the school in the High School Department was smaller than usual, owing to the general illness then prevailing in our town; but the last quarter has been distinguished for an excessive large number, and the great punctuality of attendance. It will be seen from the above report, that during the last quarter the attendance in the Ladies' Department of High School, was, 97 8-10, and in Gentlemen's 97 4-10 per cent., very considerably higher than the per cent., in any other school of the kind in the State, of which I have any knowledge, except the Central High School in Cincinnati. If the High School Department has been successful, it is largely owing to the punctuality of most of the students. When parents allow their children to stay at home for every trivial occasion, they have, as an equivalent, the pleasure of knowing that *their* children are soon far behind the rest in attainments, and then, as a salvo for their own consciences, they *blame* the *teachers* because their children do not learn. We wish parents to understand *distinctly*, that if their children do not improve, we allow *them* and *their children* to bear the blame, and claim no part for ourselves. Respectfully, Yours,

J. Hurty, *Sup't.*

Massillon Union School.

We clip the following from the "Massillon News," of March 14th. It is a portion of a very long and interesting article on the examination and exhibition lately held there. We most heartily concur with the highly complimentary opinions expressed in regard to Mr. L. Andrews, and trust that in the large field upon which he proposes to enter, he will not deserve less praise nor win less success:

We can not close this article without saying a few words in reference to the gentleman, who, from its infancy to the present time, has had the immediate superintendence of this School. Lorin Andrews is one in whose soul is stamped the impress of nobleness, and a devoted attachment to the interests and prosperity of common schools. He has labored with a zeal, energy and ability unsurpassed, and has fully and faithfully discharged each and every trust committed to his care, for which he finds his reward in the love and admiration of the whole school, and in the sympathies and respect of the entire population of our town. No man ever enjoyed the confidence and respect of a community more fully than he does that of the citizens of Massillon.

A sense of duty and a desire to promote the best interests of the cause to which he has devoted his life, and his untiring energies, has induced him to take leave of us, in order to extend his labors over a larger field. Having been appointed chairman of the Executive Committee of the State Board of Education, he has relinquished his station here, to which was annexed *one thousand dollars* salary, and goes out upon the world without the least pecuniary reward, as a laborer in the great cause. He will spend the coming year in attending and holding Teachers' Institutes in the different parts of the State; thus bestowing his labors upon those who, in turn, will apply the advantages which they thus gain, for the advancement of knowledge in the minds of the youth of the whole State.

In thus going forth he carries with him at the same time the regrets of our whole town for his loss from among them, and their warmest wishes for his future welfare.

At the close of the examination of the pupils of the Union School on Friday afternoon, a meeting of the citizens was organized by calling Gen. Dwight Jarvis to the chair, and appointing W. C. Earl, Secretary.

Dr. Wm. Bowen then on behalf of the Board of Education, presented the following

PREAMBLE AND RESOLUTIONS.

Whereas, The services of good Teachers are to be prized above all price, as to their keeping our highest interests are committed. And

Whereas, Mr. Lorin Andrews has resigned the place of Principal and Superintendent of our Union School. Therefore,

Resolved, That with this expression of our regret for the loss of one who in his relation of citizen has won the highest regard of our community, we couple that of our admiration of his talents, as an enlightened, energetic and successful teacher.

Resolved, That we are consoled by the conviction that whether he go farth in obedience to a call from the State, (a public functionary) or impelled by that educational zeal for which he is so distinguished, as a private citizen, to labor in the great cause of Common Schools, his work will be blest to the State, and as parts of the great whole, our own school and neighborhood will still be deriving benefit from his efforts.

Resolved, That to the teachers in the various departments of the school, the acknowledgements of the Board are due for their faithfulness and efficiency in the discharge of their high and arduous duties.

On motion of W. C. Earl, it was

Resolved, That the Secretary of the Board of Education be requested to furnish Mr. Andrews with an official copy of the foregoing preamble and resolutions.

For the School Friend.

Woman's Sphere.

If women, as well as men, would yield to women their indisputable rights; if ministers of the gospel, and professors of colleges, would at least be silent on a subject they do not seem to have sufficiently investigated; if our editors should search for arguments where they are accustomed to use ridicule and even ribaldry; if certain professions, employments and trades were given up to women, as their natural right; if women were suffered to have a voice in making those laws in which they are more especially interested, according to the avowed principles of all representative governments; then do we opine, that they would not only find their true sphere, but would keep within its precincts. But so long as they are denied a distinct existence, and are made, or are liable to be made, the mere appendage of some soulless senseless thing; so long as they are excluded from all appropriate employments which may chance to be lucrative; so long as they are thus driven out of their sphere, it is not to be wondered at, that we find them acting out of their sphere The wonder is,

that they even keep within the exceedingly contracted limits left them. Woman surely deserves all praise for the meekness with which she submits to so numerous and crying wrongs.

To man it belongs, as her natural protector, not so much to yield unwillingly, as to bestow cheerfully that which barbarous custom has wrested from her. But so far from this, we find the majority of men urging oppression still further, and manifesting a decided inclination to deprive her of the only right left: the right of complaining. But if still she exercises this inalienable right, she is met with supercilious sarcasm, senseless sneers or dastardly snarls.

"She is out of her place" says the redoubtable knight of the needle.

"She had better attend to her kitchen matters," declares some one who obtains his livelihood by making and selling biscuits and cakes.

"She is neglecting her children," protests some male teacher of an infant school.

"She hasn't strength of mind enough for any of the professions," avers some bully editor who has been most essentially used up on his own ground by a woman.

"She would like to make our laws for us," snarls out some miserable spendthrift, who is kept from starvation by the meager protection which the law affords his wife.

"What a pretty general she would make," simpers some puny measurer of tape and calico, whose appearance would not indicate manhood enough to hold a general's horse.

But the whole round of sneers and snarls—and they are soon learned—are off the same piece, fabricated and uttered by men quite as much out of their place as was Semiramis in commanding armies, as Elizabeth in governing a kingdom, or Hannah Moore in writing books, or Mrs. Swisshelm in editing a paper.

So often has this been forced upon my observation, that I have come, at length, to think, that a sneer about woman's rights, is in close proximity to a false position, or a very soft spot.

Further, it is my individual opinion, that if men would stick to their farms and workshops for the next fifty years, the world over, and permit women to deliberate over matters of government and national policy, we should be in possession of quite as humane and yet as efficient codes of laws as in the existing state of things.

Of this, at least, I am well persuaded, that there could not be more property and life wasted in war, than there has been for the last fifty years. I know of no reason, why women would be more out of place, butchering each other than men. If, however, it must be done, I doubt whether women would be fools enough to do it themselves. It strikes me, they would prefer to get the men at it. And if war is a most preposterous exhibition of folly at the best, I am inclined to think that a congress of women would not only find it out, but would be more successful than men have been in discovering means for its prevention.

Again, power having so long been in the hands of men, they have not only abused it in enslaving women, but in enslaving each other. There are, at this moment, three millions, nearly, of both sexes, suffering every accumulation of wrong and oppression, in our own most enlightened country. If women, having the power, should do no better, they surely could do no worse.

Although I would not impose on females the unreasonable task of correcting all the evils that have had their origin in the lust and cupidity of the male sex for ages past, I really believe they are doing more in the very limited sphere in which they are compelled to act, notwithstanding all the disabilities under which they labor, immeasurably more, both directly and indirectly to elevate and humanize our race, than those who arrogate to themselves all the power and all the wisdom. A. H.

ABSTRACT OF THE

METEOROLOGICAL REGISTER,

KEPT AT

Woodward College, Cincinnati.

Lat. 39° 6′ N.; Long. 84° 27′ W.

150 *feet above low water mark in the Ohio.*

BY JOSEPH RAY, M. D.

February, 1851.

Day of M.	Fahr'heits Therm'ter Min.	Max.	Mean Tem.	Barometer. Mean hight	Wind. A. M.	P. M.	Force	Weather	Clearness	Rain
1	20	40	37.0	29.772	east	s e	1	var'ble	1	
2	32	40	35.3	29 617	n e	n e	1	cloudy	0	.71
3	32	40	35.5	29.473	n e	n e	1	cloudy	0	
4	33	49	39.5	29.085	west	west	1	var'ble	4	
5	34	54	42.5	29.043	west	n w	2	var'ble	4	
6	29	43	33.5	29.484	west	west	1	var'ble	3	
7	26	60	42.0	29.366	west	west	2	fair	9	
8	30	64	53.5	29.191	s w	s w	1	fair	9	.34
9	51	53	52.2	29.073	s w	s w	1	cloudy	0	1.13
10	35	60	44.7	28.800	s w	west	2	var'ble	1	.05
11	29	33	29.5	29.630	n w	n w	2	var'ble	1	
12	23	42	35.3	29.887	n e	n e	1	fair	9	
13	35	50	46.0	29.644	s e	s e	1	var'ble	1	.50
14	49	59	56.3	29.344	south	south	2	var'ble	1	1.02
15	28	27	35.5	28.143	west	west	3	var'ble	1	
16	20	32	24.7	29.754	west	west	2	fair	9	
17	18	46	32.3	29.821	s w	s w	1	clear	9	
18	26	46	34.7	29.813	west	west	1	fair	9	
19	28	59	49.2	29.602	south	south	1	var'ble	3	.46
20	49	57	53.2	29.356	south	south	1	cloudy	0	.72
21	41	53	45.5	29.163	west	west	3	var'ble	2	
22	41	53	45.8	29.403	east	east	1	fair	8	
23	46	61	56.7	29.209	south	south	2	var'ble	1	.32
24	39	62	45 0	29.257	west	n w	3	var'ble	4	.07
25	30	56	46.3	29.597	east	east	1	fair	6	
26	44	70	60.3	29.339	east	south	1	var'ble	3	
27	38	60	46.3	29.296	s w	n w	1	cloudy	0	1.13
28	25	36	29.0	29.324	n w	n w	2	var'ble	1	

EXPLANATION.—The first column contains the day of the month; the second, the minimum or least hight of the thermometer, during the twenty-four hours, beginning with the dawn of each day; the third, the maximum or greatest hight during the same period; the fourth, the mean or average temperature of the day, reckoning from sunrise to sunrise; the fifth, the mean hight of the barometer, corrected for capillarity, and reduced to the temperature of freezing water. In estimating the force of the wind, 0 denotes calm, 1 a gentle breeze, 2 a strong breeze, 3 a light wind, 4 a strong wind, and 5 a storm. In estimating the clearness of the sky, 10 denotes entire clearness, or that which is nearly so, and the other figures, from 0 to 10, the corresponding proportionate clearness. The other columns need no explanation.

SUMMARY—

Least hight of	Thermometer,	18°
Greatest hight of	"	70°
Monthly range of	"	52°
Least daily variation of	"	2°
Greatest daily variation of	"	31°
Mean temperature of month,		42°.44
" " at sunrise,		36°.9
" " at 2 P. M.,		50°
Coldest day, Feb. 28th.		
Mean temperature of coldest day,		29°
Warmest day, Feb. 26th.		
Mean temperature of warmest day,		60°.3
Minimum hight of Barometer,		28.800 inches.
Maximum " "		29.912 "
Range of " "		1.112 "
Mean " "		29.410 "

Number of days of rain and snow, 11.

Perpendicular depth of rain and melted snow, 6.45 inch.

Perpendicular depth of unmelted snow, 4.5 inch.

WEATHER.—Clear and fair 8 days; variable 15 days; cloudy 5 days.

WINDS.—N. E., 3 days; E., 3 days; S. E., 1½ days; S., 4½ days; S. W., 4 days; W., 8½ days; N. W., 3½ days.

MEMORANDA.—2d, snowed all day—melted partly—depth variable; 8th, wet night; 9th, very wet day; 10th, an April day; 13th, wet afternoon; 14th, wet morning; 16th to 19th, very pleasant; 19th, drizzly evening; 20th, very gloomy, drizzly day; 21st and 22d, pleasant; 23d, rain 10 to 11, and in the night; 24th, light shower, A. M.; 25th, fair, neuralgic weather; 26th, very warm; 27th, drizzly morning and very wet night; 28th, cool and windy, the coldest day of the month.

OBSERVATIONS.—This is the warmest February at Cincinnati in the last 17 years, and is 8½ degrees above the average mean. In 1840, when February was considered extraordinarily warm, the mean temperature was about half a degree less than in the present year; and in 1845, in which February was also unusually warm, the mean temperature was about 2½ degrees less than the past February. In both these cases the mean temperature of the following March was above the average mean temperature of that month. The fact is mentioned here, because many persons have supposed that the high temperature of February would be followed by a cold March. It may be, but an examination of the months of February and March for 17 years, shows with only two exceptions, that when February was colder or warmer than usual, March was so likewise.

The amount of rain and melted snow in February is about twice the monthly average.

WINTER OF 1850—51.—By winter in meteorological reckoning is understood the period from December 1st to March 1st—90 days. The average of the last sixteen winters gives for the mean temperature 34°. The mean temperature of the past winter is 37°.7 and with the exception of the winter of 1844—5, it is the warmest at Cincinnati for the last sixteen years. The winter of 1844—5 was about a third of a degree warmer than the past winter, and was succeeded by a warm and pleasant spring.

The whole amount of rain and melted snow in the past winter is 13.12 inches, which is a little above the average, notwithstanding the extreme dryness of January. The amount of snow is the least in the last twelve winters, and is only about one-eighth of the amount i the winter of 1849—50.

"O, let not unskillful hands attempt
To play the harp, whose tones, whose living tones,
Are left forever in the strings. Better far
That Heaven's lightning's blast his very soul,
And sink it back to Chaos' lowest depths,
Than knowingly, by word or deed, he send
A blight upon the trusting mind of youth."

☞ A handsome woman pleases the eye—but a good woman the heart; the former is a jewel, the latter is a living treasure.

Let me not to the marriage of true minds
Admit impediments. Love is not love
Which alters when it alteration finds,
Or bends with the remover to remove;
Oh, no! it is an ever-fixed mark,
That looks on tempests, and is never shaken;
It is the star to every wandering bark,
Whose worth's unknown, although his hight be taken

☞ We heard a graceless loafer, who had an industrious wife, inquiring with great apparent earnestness, if the right of woman to saw wood for a livelihood was strenuously insisted on in the Female Convention.

Let Man then walk meek, humble, pure and just;
Though meek, yet dignified—though humble, raised,—
The heir of life and immortality,
Conscious that in this awful world he stands
The only of all living things ordained
To think and know and feel "there is a God."

[*Rev. W. S. Bowles.*

THE SCHOOL FRIEND,
AND OHIO SCHOOL JOURNAL.

CINCINNATI, APRIL 1, 1851.

Corporal Punishment in Schools.

Few things are more distressing to the mind of an individual engaged in teaching, or to one earnestly devoted to the cause of education, than the occurrence of those painful cases of corporal discipline, often injurious or fatal to teacher or pupil, or, to both, which rumor every year spreads over the whole province of instruction. It seems a horrible paradox, that the human mind should be created with as natural and unquenchable a hunger after knowledge, as the body after its proper food, and yet that whips and pains should be found needful to compel this same mind to learn.

Whether it be necessary or not, absolutely, to use penalties, or the fear of them, in enforcing attention to study, one thing is very certain, that those schools are more rare than angels visits, in which the appliances of torture are not almost as numerous and as steadily used as those of the Inquisition, in the day of its power. The rod smarting upon the back and shoulders; the ferule descending in burning strokes upon the tender hand; the rogue's position on the top of the highest desk, in sight of the whole array of curious eyes; the fool's seat just beneath the teacher's stand; the body painfully supported against the wall, by the feet set far out beyond the center of gravity; the excruciating walk around the stove with the fingers just caught beneath the toes; the agony of a heavy stick of fire-wood held at arms length; the stern, portentous look and menacing tones of the master, are things indissolubly associated with the early acquisition of knowledge.

It would perhaps surprise an individual to whom all such things were entirely unknown, to ask whether such means ought to be included in the idea of getting an education. It would seem almost monstrous to assert their necessity previous to experience. Are these means necessary? are they expedient? Is corporal violence, in any form, whether by painful blows or agonizing postures, such an effective queller of rebellion, and stimulant to study and order, despite the injurious and debasing influences which it undoubtedly exerts, that it would be expedient to make use of it, rather than not? It is a question in regard to which there is a wide difference of opinion. The great majority of individuals not actually engaged in teaching, are inclined strongly to favor the theory which discards these pain-giving means. Many parents are so strongly opposed to corporal punishment, as to prefer that their children should grow up in ignorance rather than be punished. On the other hand, the great majority of individuals engaged in teaching, are most undoubtedly of the opinion that it would be highly inexpedient, in the present state of matters pertaining to education, to banish from the school every appeal to pain, or to the fear of it. Teachers and parents are arrayed, in this respect, against each other. We do not mean the miserable apologies for teachers, who possess no governing power but what resides in superior physical strength, but those full length specimens, who possess warm hearts, and minds well disciplined and well stored with knowledge, and allowed by all to be models in their profession.

There are some general principles, which underlie this whole matter, and whose consideration will materially assist us in arriving at some proper conclusion, in regard to this much vexed question. What purposes does pain subserve? It is intended to prevent a greater evil by the infliction of a less. So far from serving no good purpose, it is the only indicator of the presence of danger which we have. A man puts his hand into a a flame; the instant pain tells him to take it away, or the destruction of the member will be the result. The pain of the burn is a less evil than the loss of the hand. The parent tells his child to do a certain act; the child deliberately refuses. The consequences of the disobedience, supposing it to indicate a general course of conduct, are plainly to deny allegiance to the authority of the parent, and by giving the control of the mind to impulse and passion, while the reason is weak, to run a course of wickedness, and die in crime. I think that throughout the whole field of intelligent existence the infliction of pain by natural means serve the wise and beneficent purpose of warning of danger, and thereby averting an evil which might destroy. In physical instances the most injurious or fatal consequences follow sometimes immediately, and sometimes remotely. Wherever destruction would be instant unless the danger were avoided, the pain is intense, and the individual is forced to take measures to escape. Injuries from burning, scalding, etc., are cases of this kind. Whenever the danger is remote and the warning slight, individuals are careless, and are overwhelmed by the evil when too late to be avoided. Instances of drunkenness are of this kind. If the agonies of delirium tremens were to seize upon individuals immediately upon drinking the first glass of spirituous liquor, there would be no such thing as the great evil of intemperance. If some kind master could apply the lash upon the first departure from the path of sobriety, the woe of a drunken life would never be known. Most of the ills of society arise from those vicious customs whose penalties are to be paid at a future and distant day. If some means could be devised by which the ultimate results of vicious courses could be brought forward, and be made to tell, with their last acquired force, upon the first steps of the course, many a pathway of wickedness would be closed up forever.

Now, it is especially true, that all the multitudinous evils of ignorance are remote from the period of youth, when alone a life of ignorance is to be avoided. If the advantages of education in youth be neglected, we mean if the lessons of the school room, etc., are not learned, the natural consequence is a life of ignorance, folly, and crime. The boy is not sensible that he is doing himself and all connected with him, a great and irreparable evil. Retribution is in the remote future. Present enjoyment drowns every other consideration. If the poverty, disgrace, misery and crime that await his future career, could be hurled upon him at the end of every ill-spent day, he would hardly need any other stimulant to diligent exertion. He sees not the storm, and heeds it not.

If some wise master, seeing the certain ultimate results of an idle boy's conduct, should devise means to bring forward some of the wretched consequences, and apply them immediately, and thus avert the threatened ills, who would assert that he was unfeeling, ferocious, cruel, etc? If, foreseeing these dreaded results, he should not take all needed measures, even violent ones, to render the pupil sensible, by present pain, if he could not by the fear of remote pain, of the disastrous course of his life, who would not say that he was recreant to his trust? It may not be that punishment is applied with an intention to its prospective influence. If not, we know not what good purpose can be subserved. We incline to think that in every instance of corporal punishment, the impression should be distinct upon the mind of the subject, that its purpose is to avert a future evil, of a similar character perhaps. In this view of the question, it is both proper to inflict pain and improper not to inflict it, if the teacher or guardian does not possess any other power of making the person sensible of danger. Frequent flogging, if the ultimate danger to be avoided, be clearly pointed out and comprehended by the pupil, is of little use. If he will endure all the present pains that can properly be inflicted upon him, he would endure all the future ones, and there is no hope but in something else.

We hardly think that parents should complain of teachers for flogging much, for in a vast number of cases, they are not willing to pay for the services of a teacher, any greater sum than will pay for an individual whose qualifications, for government, are of the lowest class, and who, in the absence of all mental and moral qualifications, is obliged to rely upon physical force alone.

Letters, Statistics, etc.

Some weeks since, we addressed a circular to Superintendents of Public Schools, Chairmen of School Committees, and Principals of High Schools, in some forty cities and towns, soliciting answers to sundry interrogatories relating to Public School statistics.

It affords us pleasure to state, that from the most of the gentlemen thus addressed, we have received full and prompt answers, *seriatim*, to our inquiries, for which our grateful acknowledgments are most cheerfully tendered. We can not, however, make our "Tabular Statement" as complete as we desire, owing principally to the fact that our circular did not cover the whole ground. Neither can we gather from the documents, which gentlemen have been so kind as to forward to us, all the facts and statistics needed. We, therefore, send to gentlemen in each of the cities or towns mentioned in the second column of our Tabular Statement, two copies of the April Number of the School Friend, with the hope that they will be so kind as to fill the blanks in said "Statement," opposite their respective cities or towns, and return one of the copies to H. H. Barney, Principal of Cincinnati High School, Cin., O. By doing so, they will greatly oblige teachers generally, and ourselves in particular, beside entitling them to the May number of the School Friend, which will contain said "Tabular Statement" complete.

The following is a specimen of the answers received to our letters. The Tabular Statement will be found on another page.

ST. LOUIS, February 27, 1851.

SIR: I received your letter of the 17th inst., yesterday, and take great pleasure in answering your several interrogatories as far as I am able. And here permit me to say that if I can in any way aid you in sustaining the high reputation which your school system has already acquired, my services are at your disposal. The questions I will answer in the order they are numbered.

1. By the returns of the U. S. Marshal, the population of our city proper is 78,445—suburbs 4,181—total, 82,626. The suburbs have the benefit of the public schools.

2. This will be answered as soon as the returns are complete.

3 and 6. These will be answered in a report which I am preparing, and which will be published about the first of April next, a copy of which will be forwarded.

5. The whole number of teachers at present employed is 49. Several schools have been opened this year, and more will be next.

7. Male Principals of Grammar Schools receive an annual salary of $750 or $600, according to the number of pupils in the school over which they preside. Female Principals $450 or $400; Female Assistants $300 or $250.

8. Whole sum expended during the year on account of the Common Schools, $50,135.

9. For the erection of new school houses, including cost of lots, $27,135 have been expended during the year.

10. The salary of the superintendent is $1,000, Secretary $800, Attorney $1000, Bailiff $450.

11. Two school houses were erected last summer, two stories high, one for a grammar school, and the other for a primary, at a cost each of $10,500. They are the *best* style of workmanship, heated with *Chilsen's* furnaces, and ventilated upon *Emerson's* plan.

12. All edifices erected previous to the present year are three stories high, and accommodate two grammar and one primary school; but those built last are only two stories, and cost about the same as the others, owing to their superior style and finish.

13. Until last November, our schools were supported exclusively by the proceeds of lands granted by Congress, according to an act passed in 1803. Since the first of November last, one mill on the dollar has been

collected, which amounts to about $20,000. Next year a proposition is to be submitted to the people to pay a tax of two mills and a half on the dollar, for the support of schools in the city.

14. The fact that nobody was ever asked for money to support our schools has caused our school system to pass along almost unnoticed for several years, and the public mind is just beginning to awaken to its importance; the impression thus far is favorable. The decision of the question of one fourth per cent. tax at the next election will be a test.

15. At the last election, concerning the tax of one mill on the dollar, there was very little opposition, and less from the *rich* than the *poor!*

16. We have as yet no High School, but one will be established as soon at it shall be needed.

17. The constitution of our School Board you will see by the pamphlet which I send, is *controlled* by *nobody*. The members are elected by the *people*, and form an *independent corporation*, over which the City Council has no *control* whatever.

18. To answer this question would require more time than I can devote to it now, but shall endeavor to present my views upon the subject in my next report. I will, however, simply say that there can be no doubt that it (a Central High School) is essentially necessary to a complete system of public instruction.

Yours respectfully,

SPENCER SMITH,

Superintendent of Public Schools of St. Louis.

An Exercise in Algebra.

In teaching this branch of mathematics, we have often been troubled by a want of recognition, in our pupils, of the use and authority of those self-evident principles which lie at the bottom of all mathematical investigation. We now refer more particularly to the axioms, or those simple, primary truths which are the key-stone to all demonstration. To many instructors they appear so plain, and their application so constant and necessary, that it seems proper for it to be taken for granted, that all the purposes which they subserve in demonstrations, are too well understood intuitively, to be questioned. The axioms with which we are now concerned more particularly, are: *If equals be added to equals, the sums will be equal; if equals be subtracted from equals, the remainders will be equal; if equals be multiplied by equals, the products will be equal; if equals be divided by equals, the quotients will be equal.* These simple truths, like all other primary, self-evident truths, stand as the great authority to whose decision must be referred every single operation in the whole department of equations. Every single change made upon the two members of any equation must be made in accordance with these principles, and the only sure test we can have of the truth of our conclusion, is the certain conviction that at every step of our progress, in the solution of an equation, we have never transgressed these truths. In every operation upon equation, they should be kept prominently and distinctly before the mind of the pupil. They are our only guide to certainty. If we continually recognize their authority, a light will be thrown around our pathway which will always make us perfectly confident. The hesitation and cloudiness of mind which many pupils evince on being questioned in regard to the truth of the operations they have performed, arises, in a large majority of cases, from a want of a constant perception of the application of these principles. There is hardly any exercise in mathematics which so cleanses and sharpens the powers of reasoning, as a constant reference, in all our processes of ratiocination, to these primary truths. To beginners in Algebra, the habit of citing these axioms as proofs that the operations instituted are correct, is of inestimable value. If commenced, at the first entrance upon the subject of Equations, the custom is easily acquired, and facility and completeness is given to all verbal explanations from the blackboard which cannot be obtained, so far as we know, in any other way.

For an example of the method in which we would have a beginner explain the solution of an algebraic equation, take the following simple expression:

$$2x+\frac{3x}{4}+4=20.$$

Find the value of x. Subtract 4 from each member of the equation according to axiom 2d, which is, (as applied to equations,) *Subtract equal quantities from each member of an equation, and the equality will not be destroyed;* and it becomes

$$2x+\frac{3x}{4}=16.$$

Multiply each member by 4, according to axiom 3d, which is, *If both members of an equation be multiplied by the same or equal quantities, the equality will not be destroyed;* and it becomes

$$8x+3x=64, \text{ or, } 11x=64.$$

Divide both members by 11, according to axiom 5th, which is, *If both members of an equation be divided by the same or equal quantities, the equality will not be destroyed;* and it becomes

$$x=5\tfrac{9}{11}.$$

We think that pupils studying Algebra, should constantly recur to these axioms, in every case where they are applicable, until the mental reference will always be made whether the oral one be made or not. If there be any fractions in the equation, the different steps of their reduction should always be accompanied by reference to the propositions relating to multiplying and dividing the terms of a fraction, so as to change or not change the value of the fraction. The axiom or proposition cited should always be given in full whenever the application is made.

Grammatical Difficulties.

In the March number of our paper, one of our correspondents opens his artillery against the whole tribe of English Grammars. He would sweep them all from the field, as miserable traitors to the pretensions they set forth, and would warn all against putting any confidence in such faithless impostors, such blear-eyed leaders of bewildered ignorance. He asserts, with the coolest contempt, that "there is not to be found a book in the English language, that is more ungrammatical, or that is more replete in absurd terms" than any one of the common tribe of English Grammars, (Cardell's Philosophical Grammar excepted).

Our friend S. W. makes a very fierce onslaught, and that too in the very teeth of customs of teaching as long established, and universally received, as the use of the English language itself. What person would dare to assume the teacher's signet of office, without subscribing to the "Thirty-nine Articles" of English Grammar? What body of learners so rash as to constitute themselves a school, without writing high on its list of studies, a text-book on English Grammar, (not Cardell's)? To strike out these text-books from our schools would be like blotting out Jupiter from our planetary system, Milton from the poets, or Cæsar from the host of renowned warriors. There would be a distressing vacuum. Multitudes of teachers would feel that their very life was taken away, though the pupils might fling up their hats, and shout at the top of their voices.

Our friend commences the war by drawing the rasp across the technical terms which are used in most Grammars; "for instance, *pluperfect tense*,—that is, *more than perfect. Intransitive action*—that in which there is a real *movement* or *change*, and nothing *moved* or *changed. Disjunctive conjunction*, that in which something is *disjoined* and *joined* at the same time." We regret that our friend has set out upon this crusade with a spirit so keen and hypercritical. If carried into many other branches of learning it would give rise to the most ludicrous and useless opposition imaginable. Wherever technical terms are necessary to be used, they should always be understood as the author of the work has defined them. Any other rule would leave us in the utmost perplexity. To go back to Noah's Ark, or any other nearer place, and ascertain the meaning of the component parts of a compound technical term, and thence determine its interpretation, independently of the circumstances in which it is used, is a very troublesome and unsatisfactory business in this life. We are aware that the term *pluperfect* is compounded a Latin word, which signifies *more*, and *perfect*, a compound word from the same language, which signifies *completely made or done*; and that nothing can be *more completely made or done*, yet usage, as universal as speech, sanctions the expressions, *more perfect*, and *most perfect*, incongruous as it may seem. Grammarians can never give law to language. The whole miserable tribe find an immense deal of trouble in ascertaining exactly the laws in which our language acts, and the whims in which it indulges itself. The poor fellows are too frequently belabored for failing to do what they would be dubbed the most egregious blockheads for presuming to try to do, namely, to get up any Procrustean bedstead, and hew off or stretch out language until it fitted exactly. Now, we think, that if our objector will allow to grammar-makers, the privilege which every book-maker claims, as an inalienable right, that of using any term he may choose, after he has assigned a requisite definition, and will not charge upon them the heinous offense of being the great original force which regulates the growth and movements of oral and written speech, the above animadversions will be withdrawn, and grammarians kindly relieved.

It is further asked, "Why is 'will love,' and 'shall love' in the indicative mood, and 'would love' and 'should love' in the past tense, potential mood." Why 'would love' and 'should love' are in the *past tense* of any mood is more than we can find any one brazen-faced enough to explain. Prof. Fowler, in his late plethoric work on English Grammar, very kindly intimates, that those grammarians who thus dispose of these unfortunate words, have undoubtedly conspired to humbug the public. We incline to the opinion that, in this point at least, the very learned Professor is quite right. We cave in to this question, as we have frequently queried with ourself in regard to the same thing. Mr. S. D. French, in a lecture delivered some time since, disposes of this matter to the utter discomfiture of all grammars, and to our entire edification. We regard it as simply an injudicious classification. No man of common sense, not drilled into rank and file by grammars, would be beguiled by the expression, "I *could* pay you $1000," with the absurd belief that the affirmation indicated a transaction actually past. What curious castles in the air, grammarians might construct on hearing such a sentence, we can not tell.

In regard to the classification of the verbs, "*stands*," "*sits*," "*has*," "*equals*," we have only to say that they must be classed in some manner. Systems of classification must be based on somewhat general principles, or the genera, orders, families, species, etc, will become so numerous as to overburden and disgust. Verbs vary according to the ideas they are intended to convey. In some connections a verb is transitive, in others, the same form is intransitive, in others still, neuter. Their *most usual* meaning must determine their class.

The following sentences challenge a parsing without "making a rule for the special case." "I was allowed *great liberty*." "He was forbid *the presence* of the King." "She was offered *them* by her mother." These expressions are sanctioned by the best usage. They are the vagaries of language. How can grammarians reconcile them with established principles? Goold Brown says that human beings frequently make the proper object of a verb the subject, and dispose of the proper subject in the easiest way possible, thus, "great liberty was allowed to me," or "I was allowed," etc. The running away from common usage is special, and the rule to follow it must be special.

Mathematical Questions.

21. If the two sides of a triangle be bisected, prove that the line joining the points of bisection is parallel to the base of the triangle.

22. Prove that the sum of the sides of any isosceles triangle is less than the sum of the sides of any other triangle having an equal base, and the same altitude.

23. Prove that the line which joins the vertices of any two equivalent triangles standing on the same base, is parallel to that base.

24. Prove that, of all equivalent parallelograms, the sum of the sides of that one is least whose angles are equal to each other.

25. Prove that, if one circle be inwardly tangent to another circle, any two chords of the outer circle, drawn from the point of tangency, will be cut proportionally by the circumference of the inner circle.

26. If any two lines be drawn from the two extremities of the diameter of a circle, so as to make a right angle at their intersection, prove that this point of intersection is in the circumference of the circle.

27. Divide any triangle into two equivalent triangles.

28. Given $A : B :: C : D$, prove that $A : B :: \frac{1}{D} : \frac{1}{C}$.

29. Given $A : B :: C : D$, prove that $A^3 : ABC :: A^2 : AD$.

30. Given $A : B :: C : D$, prove that $\frac{3}{A} : \frac{3}{B} :: \frac{3}{C} : \frac{3}{D}$.

Education and the Constitution of Ohio.

We suppose that most members of the Ohio Constitutional Convention, now adjourned, have satisfied themselves that the following meagre provisions are all that is going to be needed by the great and growing State of Ohio in regard to the most important influence operating upon her welfare. We sincerely regret that something for State supervision could not have been done. We understand, however, that objections were not made to its expediency, but only to the propriety, of inserting such partial provisions in the Organic Law of the land. The opponents to the report of the Committee on Education, contended that all arrangements relating to this matter belonged legally and properly to the State Legislature:

EDUCATION.

SECTION 1. The principal of all funds arising from the sale or other disposition of lands or other property, granted or entrusted to this State, for educational and religious purposes within the same, shall forever be preserved inviolate and undiminished; and the interest and income arising therefrom, shall be faithfully applied to the specific objects of the original grants, or appropriations.

SECTION 2. The General Assembly shall make such provisions, by taxation or otherwise, as, with the income arising from the school trust funds, will secure a thorough and efficient system of common schools throughout the State. Provided, that no religious or other sect or sects, shall ever have any exclusive right to, or control of, any part of the school funds of this State.

ITEMS.

☞ We have noticed with much pleasure the publication of quite a large number of folio papers, or pamphlets, by individuals connected with Union schools. Within the last five years they have increased to a wonderful extent. They are usually issued but once in a month. They cost but a small sum, and form a direct connection between the teacher and pupils, and the parents, and others interested in education. They are a fine indication of the increasing favor and rising destiny of common school education. Of this class there is now before us the "Home School Journal," from Youngstown, Ohio, a fine paper. The "Acorn," Ashland, Ohio, containing some good articles, among which we notice "Punctual Attendance at School," and "Visit our Schools." The politician has his paper, the divine, his, the farmer, his, and why should not the school master have one. "The Portfolio," issued from the Springfield (Mass.) High School, has come to us. The "Gleaner," from the Sandusky High School, though generally prompt, has not been seen lately.

The "ACORN," published by the teachers and pupils of the Ashland High School, is a monthly folio; price 20 cents, single copy, for five months. Address J. LYNCH.

The "PORTFOLIO," a monthly folio, is issued by the scholars of the Springfield (Mass.) High School; price 12½ cents per annum.

The Columbus Schools have produced something a little more weighty than those we have mentioned. Their paper is a royal duodecimo pamphlet, containing twenty pages, including the cover, and is styled the "PUBLIC SCOOL ADVOCATE, and HIGH SCHOOL MAGAZINE." It is a monthly, finely gotten up, and will no doubt, under the able editorship of A. D. LORD, M. D. Superintendent, do much good towards arousing interest in school matters wherever it is circulated. The pupils of the High School contribute a large portion of the matter. Price 25 cents per annum.

☞ We have been informed that Mr. D. G. A. Davenport, the Principal in the Seventh District School, is soon to resign his situation as teacher. He is compelled to do this by the attacks of a bronchital disease, whose rapidly increasing strength begins to alarm himself and his friends for his ultimate safety. Mr. D. is a young man of much promise, and has had the most flattering success as an instructor; and every friend of the schools in this city regard his leaving with feelings of the most unfeigned regret. Can not something be done to guard our teachers from this disease which seems so peculiar to, and common among, the members of our profession. This will be the fifth place which, within the last few months, has been left vacant by the resignation of the Principal teacher.

☞ In accordance with a resolution of our State Teachers' Association, at its last annual meeting, at Columbus, the committee appointed for that purpose, have prepared a pamphlet, entitled, "History and Proceedings of the Ohio State Teachers' Association from its formation in 1847, to the close of its third Anniversary in 1850; with a list of its officers and members." This is an interesting and valuable document, containing 54 pages. It embodies not only the proceedings at the several meetings of the society, but also much educational matter which the Executive Committee caused, from time to time, to be circulated throughout the different parts of the State, and also an account of the various ways in which the Committee endeavored to act upon the inhabitants of the State, in arousing them to a sense of the great importance of improvement in methods and means of education. Among the valuable articles, we notice an "Address of the Executive Committee to the County School Examiners of Ohio," "To Teachers and Friends of Education in Ohio," "Report upon Union Schools," and the "Third Annual Report of the Executive Committee," which was inserted in our last number. The article upon Union Schools is especially valuable to those about to lay aside the old system and adopt some new one.

☞ On the evening of the 4th ultimo, Mr. G. W. Rice, the excellent Trustee of the School in the Eighth District, gave an entertainment to his teachers and their friends. The attendance was quite numerous, and the evening passed away with refined enjoyment of the most rational kind. The ample refreshments were met by a most genial flow of social pleasantry, and when finally the company dispersed at a late hour all seemed delighted and satisfied with the occasion which had brought them together. The grave, forbidding look of the school room gave way for a time to friendly humor, and under the cheerful welcome and unwearied attentions of the obliging Trustee and his amiable lady, they forgot that they were anything else but human beings. All who were present remember with much pleasure the festive scene, and sincerely incline to the opinion that Mr. Rice's example is one of the most felicitous ones which School Trustees can follow.

☞ Preparations are now being made in this city, for the meeting of the "American Association for the promotion of Science," which is to be held here in the month of May next. It is to be much regretted that this meeting is not to be graced by the presence of the Senior and Junior Silliman. The elder Silliman was among the first projectors of this society, and both have long given it a most enthusiastic, liberal and vigorous support. The world at large will never know how much it is indebted to these two giants in the fields of scientific discovery. They left New York on the 5th of last month, on the steamer Baltic, on a visit to Europe. Their purpose is to make geological explorations throughout the middle and central portions of that continent. They design to visit the volcanic regions of France and Italy, to examine Vesuvius and Etna, and the ridges of the Alps, and to return to England in July, in time to attend the meeting of the "British Academy of Science." A most interesting meeting is anticipated there.

☞ We learn from one of our exchanges that Charles K. Winn, a schoolmaster in the city of Buffalo, has been held to bail, to answer to the charge of manslaughter; one of his pupils having died, it is supposed, in consequence of blows inflicted by him. The particulars we have not been able to learn, but hope and trust that the charge is not true. If it be true, it is a most shameful, and criminal thing, and can deserve no better name than murder.

☞ We notice the following, from a Southern paper: "The census of Carroll county, Ga., reports no less than 54 sets of twins in that county. One fruitful lady has blessed her faithful spouse with three sets *and sundry others with two sets each.*"

☞ We would recommend, to particular notice, the article in this number, on the "Dominical Letter." It was prepared with great care, and will save teachers the trouble of a long, and probably fruitless, search to find a similar article in other works. Something on the subject of the Dominical Letter, can be found in almost any Encyclopedia, but these articles are meager concerns. They inform us of the use of this letter, and the rule for finding it for any year, *but they do not give the demonstration.* We know of but one English and one French work, that contains anything like a complete elucidation of this matter. The demonstration of the Rule is entirely original, and unlike that of any other with which we are acquainted.

☞ Mr. Bond, Director of the Astronomical Observatory, in Cambridge, Mass., discovered a new comet sometime during the month of February. Its right ascension, when first seen, 22 hours, 33½ minutes; its south declination, 4°, 36′. It is *supposed* to be the same comet discovered by M. Feaye, in November 22, 1843. Nicholai and Leverrier then assigned it a period of 2717 days; the eccentricity of its orbit was 0,55596, and the inclination to the ecliptic 11 deg. 22 min. 31 sec.

☞ The scientific world has been thrown into commotion by the discovery of birds which are entirely wingless. Several specimens of this curious fowl were found and examined by Captain Poole, on Lord Howe's Island, an island lying between New Holland and Norfolk Island. It is about as large as a quail. Remains of wingless birds were discovered some time since in New Zealand.

Name of State.	N. Y.	Penn.	Mass.	Md.	La.	O.	Mo.	Penn.	R. I.	N. Y.	Ill.	Mass.	N. J.	Me.	Mass.	Ct.	O.	Mass.	"	N. Y.	Mass.	Me.	O.	Mass.	Wis.	N. Y.	Vt.	Mass.	Mich.	Mass.	O.	N. Y.	O.	Mass.	Penn.	Mass.	O.	N. Y.	Mich.	O.	N. H.	N. Y.	O.	Mich.	Iowa.	Me.	O.	N. H.
Name of City or Town.	New York,	Philadelphia,	Boston,	Baltimore,	New Orleans,	Cincinnati,	St. Louis,	Pittsburg,	Providence,	Albany,	Chicago,	Lowell,	Newark,	Buffalo,	Portland,	Salem,	Hartford,	Cleveland,	Roxbury,	Charlestown,	Cambridge,	Utica,	New Bedford,	Bangor,	Columbus,	Springfield,	Milwaukie,	Syracuse,	Brattleboro,	Worcester,	Detroit,	Lynn,	Dayton,	Rochester,	Akron,	Nantucket,	Lancaster,	Newburyport,	Sandusky,	Ithica,	Monroe,	Massilon,	Manchester,	Lyons,	Marietta,	Ann Arbor,	Iowa City,	Hallowell,	Xenia,	Keene,
Population of City or Town.	517,000	409,000	138,000	169,000	115,438	82,626		42,000		30,000	29,620				18,948		17,041	18,316	15,933	14,825		16,441		17,867	11,330		22,939		15,965	23,000	13,613	10,976			3266	8779		9534	5988	5000		3300		2600	3133				7056
Whole number of pupils on the rolls of the Public Schools during the year.	50,000	45,383	20,369	7093	11,181					1960	6902		5971		2751		2910	4141	3011			2723		2205		330	3012	3250	2290	1480				1331		1424			600		475		500					
Whole amount expended during the year, for all purposes connected with the Public Schools.	$531,000	332,433	315,339	74,812	67,884	50,135		46,350		9627	42,923								28,680					16,000		14,100	1,500	16,000	8,603				7,155		11,350					1900	3,380		3,728	6,000					
Cost per pupil, during the year on the entire expenditure.	$10.63	7.35	15.43	10.54	6.07			7.95		4.91	6.21				6.93											4.89	4.54	5.32	2.03				4.16		8.52					3.16	7.11		7.45						
Whole amount expended during the year for salaries of Teachers.	$	178,395	182,000	45,600	46,834			31,800		5990	33,019				26,240				25,403							7,134	1,400	11,350	6,955				6,665							1,550	2,070		2,948	2,150					
Average daily attendance of pupils for the year.		15679	6150		5362					1273	4040				4101		2435		2433	2362	2098		2149		1423		1459		1994										325	380		400						
Whole amount expended during the year, for New School Houses, Lots, Furniture, etc.	$	56,222	70,665	5,643	27,135																																												
Whole amount invested in School Buildings, Lots, Furniture, etc., for all the Public Schools.	$552,459	833,751	727,502	83,963	140,000																																												
Whole amount invested in Buildings, Lots, and Furniture, on account of Public High Schools or Union Schools.	$90,047	78,784	58,860	30,000	7,000			2,100			18,800					16,000																																	
Salaries of Male Principals of High Schools.	$2500	2000	2400	1500	1500			1200			1100								1500	1500			800		1000		700	1200											800										
Salaries of Professors, or First Assistants, in High Schools.	$1500	1350	1500	850	800			1000			800				900																																			
Salaries of Male Principals of Grammar and Union Schools.	$1500	1000	1500	850	780	750		1000			800				800				1000	1000			500	600		500			600										600				700	650					600
Salaries of First Male Assistants in Grammar and Union Schools.	$800	500	1000	500	520	450					650												300	300					400											410				400	360					
Salaries of Female Teachers, 1st Grade.	$450	500	450	450	600	450		600			600								300	275			250	200					300											250				264	220					
Salaries of Female Teachers, 2d Grade.	$400	300	400	250	420	400		500			350								250	250			200	150					250											200				220	180					
Salaries of Female Teachers, 3d Grade.	$350	250	320	150	300	240		400			250								187										225															176	154					
Salaries of Female Teachers, 4th Grade.	$300	220	300		240	250		250			225																																		110					
Salaries of Female Teachers, 5th Grade.	$250	200			216						170																																							
Salaries of Female Teachers, 6th Grade.	$200	150			182						150																																							
Whole expense of High School during the last year, for Teachers' Wages, and ordinary incidental expenses.	$10,927	19,080	14,420	10,624	3,680			4,500			4,858																																							
Whole number of pupils in High School.	200	500	500		140			238																																									
Whole number of Teachers employed in all the Public Schools.	727	353	119		148						95																																							
Number of Male Teachers.	81	66	34		40						25																																							
Number of Female Teachers.	646	287	85		108						70																																							
Whole amount expended during the year for Books and Stationery, for Public Schools.	$	36,213																																																
Whole amount expended during the year, for all purposes, except Real Estate, School Furniture, Teachers' Wages, Books and Stationery.	$																																																
Average annual cost per pupil, for all purposes, except Real Estate and School Furniture.	$																																																
Average wages, per annum, of Male Teachers.	$																																																
Average wages, per annum, of Female Teachers.	$																																																
Average cost per pupil, on av. attendance, for all expenditures, except Real Estate and School furniture.	$																																																
Average number of pupils to each Teacher.																																																	

N B. Where the salaries of the Principals of Grammar Schools are not uniform the highest salary paid is the one given in this table

For the School Friend.

The Dominical Letter.

(CONCLUDED.)

We shall now proceed to investigate a formula, from which rules may be deduced for finding the dominical letter in any century.

It has already been shown that the dominical letter of the year A. D. 1, was B. It has also been shown that in common years the dominical letter retrogrades a unit each year, and two units in leap year. Therefore, if l is the number of the dominical letter for any year whatever, in the Julian calendar, if we omit the consideration of leap year, the number of the dominical letter of the year following, will be denoted by $(l-1)$, and after a number a of years by $(l-a)$. But we shall soon arrive at a number a greater than l, and in order to render the subtraction possible, we may add any multiple of 7, as $7n$. The formula then becomes $(7n+l-a)$. But since the number of the dominical letter for the year 1 was 2 (B), for the year preceding it must have been 3, that is for the year 0, of the Christian era, l was 3; the formula then becomes $(7n+3-a)$, in which a is the number of years after the year 0; that is, the number denoting the year of the Christian era.

But, since each fourth year is a leap year, in which there are two dominical letters, each intercalation will cause the dominical letter to recede another unit; the formula then becomes $(7n+3-a-\frac{1}{4}a)$, in which we take only the integral part of $\frac{1}{4}a$, that being the number of leap years in any given number of years.

This formula is now complete for any year in the Julian calendar, and in order to render it general, it will only be necessary to apply to it such a correction as will express any date since 1583, according to the principles of the Julian calendar.

In making this correction, we must first allow for the ten days suppressed in October, 1582, the 5th of October being called the 15th, thus making ten days more in the Gregorian than in the Julian calendar, from October 5, 1582, till 1700. In 1700 an intercalary day was suppressed, hence, from 1700 till 1800, there were 11 days more in the Gregorian than in the Julian calendar. In 1800 another intercalary day was suppressed, so that in the present century we reckon 12 days more in the Gregorian than in the Julian calendar. In the next century, that is, from A. D. 1900 till 2000, the difference will be 13 days; and since A. D. 2000 will be a leap year, the same difference will continue till A. D. 2100, after which it will be 14, till A. D. 2200; and so on.

Since the calendar proceeded regularly for sixteen centuries, except the omission of ten days in October, 1582, and after this the correction is $\frac{3}{4}$ of a day in a century, there being an omission of 3 leap years in 400 years, if s denote the number of centuries after the Christian era, the formula c, of correction will be

$$c=10+\tfrac{3}{4}(s-16),$$

or $$c=10+(s-16)-\tfrac{1}{4}(s-16).$$

But the date in the Gregorian calendar, being really in *advance* of the date according to the Julian calendar, this correction must be *added:* the formula then becomes

$$7n+3-a-\frac{a}{4}+10+(s-16)-\tfrac{1}{4}(s-16);$$

Or, $7n+13-a-\frac{1}{4}a+(s-16)-\frac{1}{4}(s-16)$;

Or, by omitting the 7 in 13,

$$7n+6-\frac{5a}{4}+(s-16)-\tfrac{1}{4}(s-16).$$

Substituting 18 for s, and omitting fractions, this gives for the formula for the present century, $(7n+8-\frac{5a}{4})$, in which the remainder left, after subtracting $\frac{5a}{4}$ from $7n+8$, must be positive and not exceed 7.

Let the integral part of $\frac{5a}{4}$ be called b, and let $b=7n+r$, the formula then becomes

$$7n+8-(7n+r)=8-r.$$

This gives the following RULE for finding the dominical letter for any year in the present century:

To the given year add its fourth part, omitting fractions; divide the sum by 7; *subtract the remainder from* 8; *the last remainder will show the dominical letter, counting* 8 *or* 1 A, 2 B, 3 C, 4 D, 5 E, 6 F, 7 G.

NOTE. In leap year there are two dominical letters; the one found by the rule belongs to the last ten months of the year. The letter following it in the order of the alphabet, is the dominical letter for the months of January and February. Thus, the dominical letter for 1852, as found by the rule, is C, hence D is the dominical letter for January and February. The dominical letter for any year in the last (eighteenth) century, may be found by the same rule, except that the remainder, after dividing by 7, must be subtracted from 7. The last remainder will show the dominical letter, counting 1 A, 2 B, etc., and 7 or 0, G.

The dominical letter for any year in the next two centuries (the twentieth and twenty-first,) may be found by the following RULE:

To the given year add its fourth part, omitting fractions; divide the sum by 7, *and subtract the remainder from* 2, *or from* 9 *if it is equal to or greater than* 2. *The last remainder will show the dominical letter, counting* 1 A, 2 B, etc., and 7 G.

When we know the dominical letter for the centurial year, it is easy to construct a rule for that century by substituting the number of the dominical letter, in the place of l, in the formula, $(7n+l-\frac{5a}{4})$.

Thus, the dominical letter for 1800 was E, 5, hence the formula becomes $(7n+5-\frac{5a}{4})$, and by calling b the greatest integer in $\frac{5a}{4}$, and then putting $b=7n+r$, the formula becomes $5-r$, which gives the following RULE for finding the dominical letter for any year in the present century:

To the number of the year above 1800, *add its fourth part, omitting fractions* (or what is the same thing, multiply by 5 and divide by 4); *divide the sum by* 7, *and subtract the remainder from* 5, *or from* 12 *when it is equal to or greater than* 5. *The last remainder is the number of the dominical letter, counting* A, 1, etc.

NOTE. In this, as in the preceding rules, the dominical letter found for leap year belongs to the last ten months of the year, and the one following it is the dominical letter for the first two months.

We shall now add a few applications of the dominical letter, and show how *to find on what day of the week any month commences in any given year.*

The 1st day of February is always the 32d day of the year, or the 4th day of the week, reckoning integral weeks from the 1st of January; hence the letter corresponding to this is D. In common years the 1st day of March is the 60th day of the year, and the 4th day of the week; hence, the letter corresponding to it is also D; in the same manner in common years, the 1st of April is the 91st day of the year, and the 7th day of an exact number of weeks; hence, the letter corresponding to it is G. In the same manner, in common years, we should find for the remaining months, the following correspondences between the 1st day of each, and the respective letters, viz: May, B; June, E; July, G; August, C; September, F; October, A; November, D; December, F.

The following couplet was prepared to assist the memory in recollecting the letters corresponding to the first days of each month:

January,	February,	March,	April,	May,	June,
At	Dover	Dwells	George	Brown	Esquire;
July,	August,	September,	October,	November,	December.
Good	Charles	Frost	And	David	Friar.

Here the initial letter in each word in the second and fourth lines shows the letter corresponding to the first day of the month, standing over it. If we recollect that the first seven days of the year are designated by the first seven letters of the alphabet, A, B, C, etc., it is easy, when the letter corresponding to Sunday is known, to find the day of the week corresponding to each of the seven letters, and thus to find on what day, in common years, each month begins. Thus, when the dominical letter is A, January begins on Sunday, February on Wednesday, March on Wednesday, April on Friday, etc. When the dominical letter is B, the 1st of January, being A, must be on Saturday, hence, D will designate Tuesday, therefore, February begins on Tuesday; March on Tuesday, etc. Hence, by means of the preceding couplet, we can find the day of the week on which each month begins, by finding the

dominical letter for the given year, and then the days of the week corresponding to A, B, C, D, E, F, and G.

Since there are two dominical letters in leap year, the days of the week corresponding to the letters A, B, C, etc., will not be the same in the months of January and February, and the other ten months of the year. The couplet, however, applies equally well to both leap years and common years, always recollecting that the dominical letter belonging to the last ten months is to be applied, when the day of the week is required on which either of these months begins.

Having ascertained for any particular year, the day of the week on which each month begins, it is easy to find on what day of the week any given day of the month falls. For example, let it be required to find on what day of the week the 4th of July, 1846, happened. We first find the dominical letter for 1846 is D; then, by making a table like the following, we find the days of the week in that year correspouding to the seven letters. Thus,

Su.	M.	Tu.	W.	Th.	F.	Sa.
D	E	F	G	A	B	C.

Now, by the couplet, we find that G corresponds to the 1st of July, which in the year 1846 corresponds to Wednesday; consequently the 4th will be on Saturday.

In a similar manner we find that July 4th, 1836, happened on Monday.

Suppose it is required to find on what day of the week the 22d of February will fall in 1860.

This being leap year we find the dominical letter for the last ten months is G, hence, for the first two months it is A. Then the days of the week corresponding to the seven letters, are,

Su.	M.	Tu.	W.	Th.	F.	Sa.
A	B	C	D	E	F	G.

But, by the couplet, D designates the 1st of February, which corresponds to Wednesday; hence, the 8th, 15th and 22d of February will happen on Wednesday, and the 25th of February, if it were required, would be found on Saturday.

There will be a transit of Venus, December 8th, 1874, and by a similar process, we find that it will happen on Tuesday.

By examining the couplet, we find that January and October, except in leap year, commence on the same day of the week; also, that March, November, and (except in leap years) February commence on the same day of the week. Likewise, September and December, and April and July. On this, as a basis, the following table is constructed, which is termed,

A table for finding on what day of the week any month begins.

Domin. Letters,	A	B	C	D	E	F	G
Jan. and Oct.	Su.	Sa.	F.	Th.	W.	Tu.	M.
May,	M.	Su.	Sa.	F.	Th.	W.	Tu.
August,	Tu.	M.	Su.	Sa.	F.	Th.	W.
Feb. Mar. & Nov.	W.	Tu.	M.	Su.	Sa.	F.	Th.
June,	Th.	W.	Tu.	M.	Su.	Sa.	F.
Sept. & Dec.	F.	Th.	W.	T.	M.	Su.	Sa.
April & July,	Sa.	F.	Th.	W.	Tu.	M.	Su.

The application of the table is very simple. Look for the Dominical letter for the given year, (and in leap year for the given month,) at the head of the table, and for the month on the left hand; opposite to these will be found the day of the week on which that month begins.

On the principles already explained, a table may be constructed showing the day of the week corresponding to any given day of the month throughout a long series of years. Such a table may be found in the American Almanac for 1832. Hutton's Mathematical Recreations also contains tables giving the Dominical letter for several thousand years to come, though he does not explain the principles on which the Dominical letter is found. As we have already given rules for finding the Dominical letter till A. D. 2200, a period beyond which few of our readers will desire to make inquiries, it is not deemed necessary to enter upon an explanation of the universal calendar.

JOSEPH RAY.

Woodward College, March, 1851.

ITEMS.

☞ The Teachers of Cincinnati met on Saturday, March 8th, and formally constituted themselves a society, styled the "Cincinnati Teacher's Association" A Constitution was adopted and signed by all present. Officers were chosen, and the Executive Committee empowered to prepare a programme of exercises for the next regular meeting. The officers elected are G. R. Hand, President; D. G. A. Davenport, Vice President; B. O. M. De Beck, Recording Secretary; H. H. Barney, Corresponding Secretary; A. J. Rickoff, Librarian; C. C. Guilford, Treasurer; A. P. Rickoff, S. A. Wright, C. Knowlton, Executive Committee. The Executive Committee fixed upon the following question, and disputants:

Resolved, *That corporal punishment in our Public Schools should be abolished.* Affirmative, C. Nason, A. J. Rickoff; Negative, Dr. Childs, S. A. Wright.

The Association then adjourned to meet in four weeks.

☞ On the evening of the 13th ultimo, the pupils of the George Street School, gave a public entertainment of vocal music at Central Hall. This school is under the charge of Mr. O. J. Wilson, Male Principal, and Miss Marcy, Female Principal; Messrs. C. Davenport, and Charles Anderson, Trustees; and E. Locke, instructer in Music. The price for admittance was 25 cents. Though there were many attractions in the shape of Lectures and Amateur Musical Concerts, etc., to call the public away to other parts of the city, the Hall was filled at an early hour by the most respectable class of citizens, and at the commencement of the exercises, hundreds were obliged to stand, wherever they could get a place for their feet. The exercises were performed by the young lads and misses, assisted by a piano. The music was of a lively, pleasing character, and the performance very creditable to all concerned. The audience showed their appreciation and pleasure by repeated cheering. This concert compares very favorably with the best juvenile concerts hitherto given in this city, and gives abundant evidence that there is a chord in the human bosom, which no spell but the artless tones and guileless music of youth can cause to vibrate, and that where the cold, artistic productions of diplomated musicians have palled the public taste, the human soul will turn thirsting, as to a crystal fountain, to the unstrained, overflowing melody of free, innocent childhood. The proceeds of the concert are to defray the expenses of a library, for the pupils of the above school.

☞ The Legislature of Massachusetts has been agitating the subject of founding a State Asylum "for persons *supposed* to be confirmed inebriates, with a view to the total abrogation of all laws punishing intemperance *as a crime.*"

☞ The first article in this paper concerning the "Microscope and its Marvels," is a portion of a long and exceedingly interesting article in No. 353 of Littell's Living Age.

For the School Friend.

Education and Common Schools.

NUMBER ONE.

Among all the movements of this day and age of progress, the object of which is to elevate the mass of the people, I know of none more worthy of our attention and encouragement than our Common Schools.

Notwithstanding all the light which mind has reflected on this subject, there yet remains much that can be said.

All around us we find those who, from selfish or prejudiced motives, oppose education, as being of little value and altogether unnecessary to make a man good and useful, or a community wise and respectable.

Fortunately, men of this description can have but a very limited influence. The spirit of improvement which marks the age, precludes the idea that the mass of mankind should be so blinded as to adopt a notion which would make intelligence subordinate to ignorance and darkness superior to light. Nor are we wanting in direct and unmistakable proofs on the subject. The interest which is almost every where manifested in behalf of education, and the means that are employed for the diffusion of knowledge, are the best evidences we can require, and afford the pleasing assurance that the day is at hand, when the youth of our country shall receive ample instruction in all that is necessary to constitute them useful citizens, or to qualifiy them for the various duties of public and private life.

As to what may be the best mode of instruction, is a question on which different opinions will necessarily prevail; but it will hardly be denied that, as a general system of education, the present Common School system will answer all the purposes of its design. Under this regulation, the youth of our country acquire a common English education, and thus lay the foundation for entering upon the higher branches of study, taught in our Select Schools and Academies, etc.

This system can not be entirely perfect in all its parts, and therefore, is susceptible of improvement; but that improvement must be left to time and circumstances.

When good school houses shall have been built in every district, a better class of books secured, and the schools every where supplied with competent Teachers, and every thing resting on a permanent and solid basis, then the beneficial effects of the system will be more generally felt and appreciated.

We think it was neither expected nor designed by its founders to become perfect at once. But when ou schools can gain a permanent existence, and a respectable standing among the other institutions of the day—when they can be furnished with valuable libraries, and have regular courses of lectures delivered to all the pupils, when complete and thorough mental discipline is pursued by all the Teachers, and a universal approbation on the part of parents and guardians is secured, then shall we see all classes of community receiving the benefits of a liberal and universal education,—AN EDUCATION of the *head*, the *hands* and the *heart*. That which *is useful*, that which *is practicable*, and, which *is enduring and eternal.*

Who will then be able to give bounds to the influ-

ence which these schools are destined to exert over the order and well being of society?

They will scatter the gems of light in places where no other institution of the day can approach.

Their field of operation is broad, and they will do a great work in spreading a more free and general intercourse between all classes of society. They yet extend their conservative power over but a small portion of the space which we hope they will, at no very distant day, occupy. One great advantage which the Common School System possesses is this, that it is general in its operation. Its influence reaches all the youth of the community in which it is adopted; its blessings are conferred upon the poor as well as the rich; and its light is made to shine in the cottage as in the palace. It is thus there becomes a more perfect *equality* among the rising generation, whereby "that distinction which wealth has often gained to those who have no other merit, over superior intellect circumvented by poverty," will be entirely and forever abolished. But in order that these schools may operate harmoniously, it will be necessary that a uniformity of instruction be imparted throughout all the schools. This uniform system being observed, the pupils are tought by classes, and all are benefitted alike, so far as depends upon the Teacher and the means which he employs. Again, by the introduction of the common school system, a *high* order of the profession of Teachers, is called for, to teach the principles of education *correctly*. Teachers must take pride in qualifyiug themselves for a proper discharge of the duties of the profession. For where thh schools are under the control of judicious directors, none other than competent Teachers will be employed; so if there be any lack of qualification on the part of the candidate and yet a school is given him in charge, it is but a neglect of duty in the directors, and no fault of the system itself.

The influence that common school education will have on the national character wnen once it shall have been thoroughly diffused throughout every State and Territory in the Union, the records of the future only can tell.

But we may indulge the hope that it will be such as shall gain for us a high rank in the scale of nations and be an inducement to others to follow our example. That this hope will be realized, appears the more probable, when we reflect on what has already been accomplished, and that, too, under many disadvantages and in the face of strong opposition.

Having spoken in these remarks, priucipally upon the excellences of the Common School System, I now leave this consideration of the subject, and at a future time, shall speak of some of the defects of our schools, their cause, and what I deem a true remeey for much of the indisposition manifested by those who control and take charge of them. J. E. B.

Litchfield, O.

MATHEMATICAL DEPARTMENT.

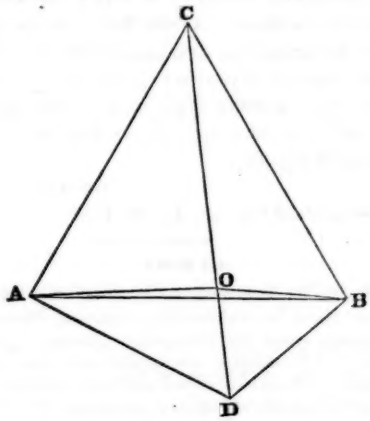
SOLUTIONS.

QUESTION 1st—By SOLOMON WRIGHT. Given $x^5+x^2\sqrt{x}=1056$, to find x by a quadratic.

SOLUTION.—Let $x^2\sqrt{x}=y$, then $x^5=y^2$, and the equation becomes $y^2+y=1056$, from which, by completing the square, we find $y=32$: hence, $x^5=1024$, and $x=4$.

QUESTION 2d—By WILLIAM FERREL. On a horizontal plane, at the three angles of an equilateral triangle, each of whose sides is 500 yards, the angles of elevation of a certain object are respectively 40°, 50°, and 60°. Required the hight of the object.

SOLUTION by JOS. G. HARLAN. CONSTRUCTION.—Make AB = 500, and upon it describe the equilateral triangle ABC. From the question it will be evident after a little reflection, that the distances from the three corners to the spot directly beneath the object, will be in the ratio of the cotangents of elevation from those points respectively. Denote the cot. of 40° by a (1.1917536), that of 50° by b (.8390996), and that of 60° by c (.5773503). Then upon AB construct the triangle ABD, having the sides in the proportion of a, b, and c, (this gives AD = 352.04 and BD = 242.22). Join CD, and at A make the angle CAO = CDA: O is the point beneath the object.



For, from similar triangles we have
CO : OA :: CA : AD :: a : b :: cot. 40° : cot. 50°;
Also CD : CA (CB) :: CA (CB) : CO.
Hence COB and CBD are similar.
Therefore, CO : OB :: CB : BD :: a : c. QED.

CALCULATION.—In the triangle BAD we have given the three sides to find the angle BAD = 26° 25′ 30″.

In the triangle CAD we have given the two sides CA, AD, and the included angle CAD = 60° + BAD, to find the angle ADC = 57° 15′ 37″, and the side CD = 593.28.

Then, by means of the proportion CD : CA :: CA : CO, we find CO = 421.38.

Lastly, we now have CO, the base of a right angled triangle, and one of the acute angles 40°, to find the perpendicular 353.6 yds, the required hight of the object.

ACKNOWLEDGMENTS.—Question 1st was solved by James Garvin, D. Hanson, Jas. A. Garfield, O. W. Marshall and John J. Hoopingarner.

Question 2d was solved by the proposer, William Ferrel, and by Joseph G. Harlan, Solomon Wright and A. McLean. When the last named gentleman writes again, will he send us the investigation, etc., to which he refers. After seeing it, we can determine as to the propriety of presenting the subject as a problem. Our compositor, though a very good one, has not had much experience in setting up *analytical* investigations, and we are obliged to have some reference to this in proposing problems. We expect, ere long, to give an interesting general problem, of which that proposed by Mr. Ferrel is but a particular case.

QUESTIONS.

QUESTION 1st—By J. W. MORRISON. Three equal circles touch each other externally, and enclose between the points of contact one acre of ground. What is the radius of their circumscribing circle?

QUESTION 2d—By D. JAMIESON. Two laborers A and B, whose rates of working are as 3 to 5, were employed to dig a ditch. A worked 12 hours and B 10 hours a day: B being called away, A worked one day alone in order to complete the work: when they were paid, B received as many cents more than A as the number of days they worked together. Now, had B been called away a day sooner, A would have received 47 cents more than B at the conclusion of the work. Required their respective daily wages, on the supposition that the payment to each was in proportion to the work performed.

3. PROBLEM—By SOLOMON WRIGHT. If equilateral triangles be described on the three sides of any rectilineal triangle, and the centers of these triangles be joined by straight lines, the triangle thus formed will be equilateral. Required a demonstration.

This question was furnished some time since by Mr. Wright, and intended to be *formally proposed*, as it now is, to our readers, for demonstration. By an oversight it was inserted among the Geometrical Questions published in the February number, which were given merely as a collection, from which teachers might select exercises for their pupils.

☞ Solutions to these questions will appear in the June number. Contributors should mail their communications so as to reach here not later than the 15th of the month preceding that on which they are expected to appear.

RATHER BITTER.—A bachelor's reply to a young lady, who significantly sent him as a present, some wormwood:—

"I'm glad your gift is not a Miss;
Much worse might me befall;
The wormwood's bad alone, but worse
The wormwood and the gal (l)."

VULGAR FRACTIONS.—"Humble as I am," said a bullying spouter to a mass meeting, "I still remember that I am a fraction of this magnificent republic." "You are indeed," said a bystander, "and a vulgar one at that."

☞ In the 16th chapter of 2d Chronicles may be found the following severe allusion to a professional failing, which, very incorrectly, we presume, is supposed to have a existence at the present time:

"His disease was exceedingly great; yet in his disease he sought not the Lord, *but the physicians*. And ASA SLEPT WITH HIS FATHERS."

MOUNT UNION SEMINARY.

This Institution, located at Mt. Union, Stark Co., Ohio, will commence its next Term, March 31st, and the following Fall Term will commence August 11th, 1851, under the superintendance of O. N. HARTSHORN, A. B., Principal, aided by E. N. JOHNSON, JR., and other competent Assistants.

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February 15*th*, 1851.

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From J. H. FAIRCHILD, *Professor of Mathematics in Oberlin College.*

Professor Ray—Sir: I have read, with much satisfaction, your Algebra, Part First. It seems admirably adapted as an introduction to the study; and is such a book as no one but an experienced and successful teacher could produce. The demonstrations are sufficiently scientific, and yet not so abstract as to be unintelligible to the learner. Many authors seem to think that their reputation depends upon making their works above the comprehension of a beginner. Although some new work on algebra appears among us almost every month, yet yours was needed. I am pleased to see that the *first* edition is quite free from typographical errors, and that the language is, for the most part, logically and grammatically accurate; a remark which will not apply to all the works on algebra recently published in your city.

If you shall succeed as well in *part second* as in *part first*, the book will be welcomed by many instructors.

(Signed) J. H. FAIRCHILD.

January 5, 1849.

From P. CARTER, *Professor of Mathematics, etc., in Granville College.*

I have examined, with much interest, the copy of Ray's Algebra presented to me by your politeness. As an elementary work for beginners, and especially for younger pupils, I consider it as one of the best with which I am acquainted. Like all the elementary works of Professor Ray, it is distinguished for its simplicity, clearness, and precision and furnishes an excellent introduction to the larger and more difficult works of this beautiful science.

(Signed) P. CARTER.

February 24, 1849.

*Extract from a communication furnished for the "School Friend", by an accomplished teacher in the "*CINCINNATI CENTRAL HIGH SCHOOL*", in which Ray's Algebra is used.*

"It is but a few months since this book was issued from the press, and although we are acquainted with a dozen othe Algebras of similar pretensions, and no mean value, yet from the examination of no one of them have we risen with s much pleasure and satisfaction, as from the examination of this." * * * "In graduating the plan of his work, th author has shown great care and ingenuity, and in its execution, has manifested a familiarity with the wants and difficul ties of young students, and a tact in obviating them, which has rarely been equaled. The principles are briefly stated then illustrated and impressed on the mind by a numerous and choice selection of examples. All portions of the work bear ample testimony to the truth of a remark in the preface, that every page was carefully elaborated by many years of toil in the school-room. The statement and illustrations of the principles indicate that the ignorance and misapprehud sions of the pupil were met and fathomed by a keen and watchful eye in the teacher, and the proper remedies applied and that these remedies were tested by repeated trials through a long and systematic course of teaching, and finally recorded for the use of students yet to be."

From MR. GREEN, *of the English and Classical Academy, Madison.*

I have carefully examined Ray's Algebra, Part First. The arrangement adopted in it of the fundamental principles of the science is, no doubt, the best one. The demonstrations accompanying the rules are lucid and accurate, and the examples copious enough to impress them indelibly upon the mind of the pupil. From the character of the author's arithmetic, the public had reason to expect that an algebra from the same author would be a valuable contribution to this department of science, and, in the judgment of the writer, this expectation will not be disappointed.

October 16, 1848.

From MR. ZACHOS, *Professor of Mathematics in Dr. Colton's Academy.*

I have examined Ray's Elementary Algebra, and the best recommendation I can give it, is the fact that I have adopted it in my younger classes. (Signed) J. C. ZACHOS.

September 23, 1848.

From B. C. HOBBS, *Superintendent of Friends' Boarding School, Richmond.*

I consider Ray's Algebra, Part First, worthy of a place in every school. The author has fallen upon an ingenious method of securing a mental preparation, before the more difficult exercises of the slate are required. The work is clear and comprehensive. and a selection of superior formulæ has been made for the solution of difficult problems. Could an objection be made to the work, it would be, that the subject is too much simplified. The cheapness of the work bring it within the means of every one. (Signed) B. C. HOBBS.

Ninth Month, 20, 1848.

From MR. S. FINDLEY, *Principal of Chillicothe Academy.*

After a careful examination of Ray's Algebra, Part First, I cheerfully recommend it as one of the best treatises in that department of science now extant. In its enunciation of rules it is concise and clear; in its demonstrations it is simple and philosophical; and its examples are numerous and varied: so that, in every respect, it excels as a theoretical and practical text-book for beginners, and as such is now in use in the Chillicothe Academy.

(Signed) SAM'L FINDLEY

February 26, 1849.

From MR. HOOKER, *Teacher at Mount Carmel, Ohio.*

Professor Ray—Respected sir: I have, for some time past, been examining your elementary work on Algebra; and can truly say, that, as a *primary* work, it is better suited (according to my opinion) for general use in schools, than any similar work with which I am acquainted. The transition from arithmetic to our primary works on algebra, is, generally, too great; and unless scholars have a "natural tact" for mathematics, their knowledge of numbers generally stops with *arithmetic*, as few have the courage to undertake to master a theoretical treatise on algebra. * * * I am glad to see you have made the change from arithmetic so gradual, and, at the same time so interesting. I have no doubt but your work will take precedence of all elementary treatises now in use in the Western States. * * *

(Signed) J. J. HOOKER.

February 28, 1849.

CINCINNATI PUBLIC SCHOOLS.

The following is the Report of the Committee on Text Books to the Board of Directors, [*May* 1, 1849.]

"That they have examined Ray's Algebra, Part First, and find it to be the cheapest and *the best* elementary work on the science of Algebra that they have used, or that has come under their inspection. It is of a higher order than most elementary works, and at the same time, it is very simple, commencing with seventeen pages of intellectual exercises which serve as a connecting link between Arithmetic and Algebra. The whole work appears to be what the author say it is—'The result of much reflection, and the experience of many years in the school-room.' The committee, therefore recommend the adoption of the following resolution:

"*Resolved*, That Ray's Algebra, Part First, be adopted as a Text Book in the Common Schools of Cincinnati.

WM. PHILLIPS, JR. | C. DAVENPORT,
S. MOLLITER, | A L. BUSHNELL,

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